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A LIST OF THE BITING LICE (MALLOPHAGA) TAKEN FROM BIRDS AND MAMMALS OF NORTH AMERICA.

BY

VERNON L. KELLOGG, M. S.,
Professor of Entomology, Leland Stanford Junior University.

From the Proceedings of the United States National Museum, Vol. XXII, pages 39-100.

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A LIST OF THE BITING LICE (MALLOPHAGA) TAKEN FROM BIRDS AND MAMMALS OF NORTH AMERICA.

By VERNON L. KELLOGG, M. S.,
Professor of Entomology, Leland Stanford Junior University.

Within the last few years a beginning in the systematic study of the North American Mallophaga has been made. This study has progressed sufficiently to make it worth while to prepare a list of the Mallophaga so far recorded as having been collected from birds and mammals found in North America.[1] By this is meant the record of collection actually made from American host specimens, and not from host species common to both Europe and America, from which parasites are as yet recorded only from European host specimens. Where Mallophaga have been found common to American and European hosts, the foreign as well as the native hosts are given. As the synonymy for the species of Mallophaga found on American hosts has been given in both Professor Osborn's and my own papers (these papers including practically all the American records), I have not repeated the synonymy in the list. All the American records as originally published are included in the list, no attempt having been made to correct the synonymy. Probably not more than half a dozen species in the list are liable to such correction. The American specimens referred to species originally found on European hosts have been so referred on the authority of the original descriptions and illustrations of European authors. The great importance of the correctness of these determinations, because of the interesting problems in distribution presented by this specific identity of European and American specimens, led me to take to Europe a large number of American specimens for the sake of comparison with the European types. This comparison revealed the fact that these determinations of the identity of the American specimens with European species can be relied on.

In addition to the list of parasites with hosts there is given also a list of hosts with parasites, so that reference to the American records can be readily made from either parasite or host. Students beginning

[1] Some birds from Panama are included in this list. "North America," according to the American Ornithologists' Union check list, "includes the continent of North America north of the present United States and Mexican boundary, and Greenland and the peninsula of Lower California, with the islands naturally belonging thereto."

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the study of the Mallophaga will soon discover the advantage of working from the basis of known host.

It is hoped that the list may serve as a convenient basis for the study of the phenomena of the distribution of the Mallophaga, one of the most interesting phases of the study of this group of insects.

Types and cotypes of my own and of Osborn's are now deposited in the U. S. National Museum.

BIBLIOGRAPHY.

There are very few records in the European literature of the Mallophaga of specimens taken from North American hosts. In very rare instances specimens have been taken from the skin of some North American bird in the collection of some European museum, or parasites have been collected in zoological gardens from representatives of some bird species peculiar to North America. For example, Piaget collected two species of Mallophaga from specimens of the Bob White (*Colinus virginianus*) and California Partridge (*Callipepla californica*) in the zoological garden at Rotterdam. I have since found both of these species of Mallophaga on the same hosts in their native habitat. All of these records are referred to in the list. The following are the American papers containing the records upon which the list is based. For an extended bibliography of the foreign and American literature of the Mallophaga see Osborn[1] and Kellogg.[2]

Packard A. S. Certain Parasitic Insects, American Naturalist, 1870, IV, p. 83, ill.

Leidy, J. Proc. Acad. Nat. Sci. Phila., 1878, p. 100.

Osborn, Herbert. Notes on Mallophaga and Pediculidæ, Canadian Entomologist, 1884, XII, p. 197.

The Pediculi and Mallophaga Infesting Man and the Lower Animals, Bull. No. 7, Div. of Ent., U. S. Dept. of Agric., 1891.

Insects Affecting Domestic Animals, Bull. No. 5, new ser., Div. of Ent., U. S. Dept. of Agric., 1896.

Kellogg, V. L. New Mallophaga, I (Contributions to Biology from the Hopkins Seaside Laboratory, IV, 1896).

New Mallophaga, II (Contributions to Biology from the Hopkins Seaside Laboratory, VII, 1896).

Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III (Contributions to Biology from the Hopkins Seaside Laboratory, XIX, 1899).

Kellogg, V. L., and Chapman, B. L. Mallophaga from Birds of California, in New Mallophaga, III (Contributions to Biology from the Hopkins Seaside Laboratory, XIX, 1899).

Chapman, Bertha L. Two New Species of Trichodectes (Mallophaga). Entomological News, 1897, VIII, p. 185, pl. IX.

CLASSIFICATION AND KEYS.

The position of the Mallophaga among insects is discussed briefly in my New Mallophaga.[3] The latest classification of insects assigns to the Mallophaga the position of an independent order. The affinities of the

[1] Insects Affecting Domestic Animals, Bull. No. 5, new ser., 1896, Div. of Ent., U. S. Dept. of Agric., p. 292.

[2] New Mallophaga, I, 1896, pp. 35, 40.

[3] Volume I, 1896, pp. 57–59.

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order are in general with the platypterous pseudo-neuropteroid group comprising the Termites, Psocids, and Perlids, and are in particular with the Psocidæ. In the New Mallophaga[1] I refer to the correspondence between the peculiarly specialized mouth structure of the Mallophaga and the Psocidæ, and the recent careful study by Mr. R. E. Snodgrass[2] on the anatomy of the Mallophaga reveal other particulars of essential structural agreement between the two groups.

As to the arrangement of the members of the order, I have proposed[3] the adoption of a primary grouping into two suborders, corresponding with Nitzsch's original division of the group into two families. In each of these suborders there are two families, one family of each suborder infesting mammals exclusively and comprising but a single genus, the other family of each suborder, comprising several genera, infesting birds exclusively. Mr. Snodgrass's anatomical studies present new and important characters for the subdivision of the order which do not modify the original classification, but strengthen it and put it on a more thoroughly scientific basis. These new characters have been introduced into the following keys. I have made some other changes in the statement of the characters of the subordinate groups, based on my general study of the order and use of the keys as heretofore published.

ANALYTICAL KEY TO SUBORDERS OF MALLOPHAGA.

With filiform, 3- or 5-segmented, exposed antennæ; no labial palpi; mandibles vertical; œsophageal sclerite and accompanying glands usually present and normal; meso- and metathoracic segments fused; crop a saclike diverticulum; ingluvial glands present; testes, four; egg tubes, five ..... ISCHNOCERA.

With clavate or capitate, 4-segmented, concealed antennæ; with 4 segmented labial palpi; mandibles horizontal; œsophageal sclerite and accompanying glands absent or modified; meso- and metathoracic segments with sutural line usually visible; crop, simple; ingluvial glands, absent; testes, six; egg tubes, three to five ..... AMBLYCERA.

ANALYTICAL KEY TO GENERA OF THE SUBORDER ISCHNOCERA.

A. With 3-segmented antennæ; tarsi with one claw; infesting mammals (family Trichodectidæ) ..... *Trichodectes* Nitzsch.

AA. With 5-segmented antennæ; tarsi with two claws; infesting birds (family Philopteridæ).

B. Antennæ similar in both sexes.

C. Front deeply angularly notched ..... *Akidoproctus* Piaget.

CC. Front convex, truncate, or rarely with a curving emargination, but never angularly notched.

D. Species broad and short, with large, movable trabeculæ (at the anterior angle of antennal fossa).

E. Forehead with a broad transverse membranous flap projecting beyond lateral margins of the head in the male, barely projecting in the female ..... *Giebelia* Kellogg.

EE. Without such membranous flap ..... *Docophorus* Nitzsch.

DD. Species elongate, narrow, with very small or no trabeculæ. *Nirmus* Nitzsch.

[1] Volume II, 1896, p. 468. [2] New Mallophaga, III, 1899.
[3] New Mallophaga, I, pp. 59–63.

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BB. Antennæ differing in the two sexes.
C. Species wide, with body elongate-oval to suborbicular.
D. Temporal margins rounded; last segment of abdomen roundly emarginated; antennæ of male without appendage, third segment very long ..... *Eurymetopus* Taschenberg.
DD. Temporal margins usually angulated; last segment of abdomen convex, rarely angularly emarginated, with two points.
E. First segment of antenna of male large, sometimes with an appendage; third segment always with an appendage. *Goniodes* Nitzsch.
EE. First segment of antenna of male enlarged, but always without appendage; third segment without appendage; last segment of abdomen always rounded behind. *Goniocotes* Nitzsch.
CC. Species elongate, narrow, sides subparallel.
D. Third segment of antenna of male without an appendage. *Ornithobius* Denny.
DD. Third segment of antenna of male with an appendage.
E. Front deeply angularly notched..... *Bothriometopus* Taschenberg.
EE. Front not angularly notched.
F. Antennæ and legs long; a semicircular oral fossa. *Lipeurus* Nitzsch.
FF. Antennæ and legs short; oral fossa narrow, elongate, extending as a furrow to the anterior margin of the head. *Oncophorus* Rudow.

ANALYTICAL KEY TO GENERA OF THE SUBORDER AMBLYCERA.

A. Tarsi with one claw; infesting mammals (family Gyropidæ) ... *Gyropus* Nitzsch.
AA. Tarsi with two claws; infesting birds (excepting Boopia?); (family Liotheidæ).
B. Ocular emargination distinct, more or less deep.
C. Forehead rounded, without lateral swelling; antennæ projecting beyond border of the head..... *Colpocephalum* Nitzsch.
CC. Forehead without strong lateral swellings.
D. Antennæ projecting beyond border of the head; temporal angles projecting rectangularly; eye large and simple.. *Boopia* Piaget.
DD. Antennæ concealed in groove on under side of the head; temporal angles rounded or slightly angular; eye divided by an emargination and fleck.
E. Mesothorax separated from metathorax by a suture. *Trinoton* Nitzsch.
EE. Meso- and metathorax fused; no suture. *Læmobothrium* Nitzsch.
BB. Ocular emargination absent or very slight.
C. Sides of the head straight or slightly concave, with two small, laterally projecting labral lobes ..... *Physostomum* Nitzsch.
CC. Sides of the head sinuous; forehead without labral lobes.
D. Ocular emargination filled by a strong swelling; sternal markings forming a quadrilateral without median blotches. *Nitzschia* Denny.
DD. Ocular emargination without swelling, hardly apparent or entirely lacking; median blotches on sternum.
E. Very large; with two 2-pointed appendages on ventral aspect of hind head; anterior coxæ with very long lobelike appendages. *Ancistrona* Westwood.
EE. Small or medium; without bipartite appendages of hind head. *Menopon* Nitzsch.

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LIST OF MALLOPHAGA.

Order MALLOPHAGA Nitzsch.

Suborder ISCHNOCERA Kellogg.

Family PHILOPTERIDÆ Burmeister.

Genus DOCOPHORUS Nitzsch.

Docophorus NITZSCH, Germar's Mag. f. Ent., 1818, III, p. 289.

Docophorus kansensis KELLOGG, New Mallophaga, I, 1896, p. 91, pl. III, fig. 8.

From *Colymbus nigricollis californicus* (Lawrence, Kansas).

Docophorus gravicepsis KELLOGG, New Mallophaga, I, 1896, p. 82, pl. III, fig. 3.

From *Urinator pacificus* (Bay of Monterey, California) and *Fulica americana* (Pacific Grove, California).

Docophorus colymbinus DENNY, Monograph. Anoplur. Brit., 1842, p. 80, pl. VIII, fig. 8.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.

Recorded by Osborn from *Urinator lumme* (Burnett collection); taken by Kellogg from *Urinator pacificus* (Bay of Monterey, California); this record not before published.

Recorded by European authors from *Colymbus septentrionalis*, *C. arcticus*, *C. glacialis*, and *Tadorna cornuta*.

Docophorus acutipectus KELLOGG, New Mallophaga, I, 1896, p. 84, pl. III, fig. 4.

From *Cerorhinca monocerata* (Bay of Monterey, California).

Docophorus insolitus KELLOGG, New Mallophaga, I, 1896, p. 94, pl. IV, fig. 5.

From *Ptychoramphus aleuticus* (Bay of Monterey, California).

Docophorus montereyi KELLOGG, New Mallophaga, I, 1896, p. 87, pl. III, fig. 6.

From *Ptychoramphus aleuticus*, *Synthliboramphus antiquus*, and *Brachyramphus marmoratus* (all from the Bay of Monterey, California).

Docophorus atricolor KELLOGG, New Mallophaga, I, 1896, p. 93, pl. III, fig. 9.

From *Synthliboramphus antiquus* and *Brachyramphus marmoratus* (Bay of Monterey, California).

Docophorus procax KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 54, pl. V, fig. 1.

From *Cepphus columba* (Bay of Monterey, California).

Docophorus calvus KELLOGG, New Mallophaga, I, 1896, p. 79, pl. III, fig. 1.

From *Uria troile californica* (Bay of Monterey, California).

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Docophorus lari DENNY, Monograph. Anoplur. Brit., 1842, p. 89, pl. V, fig. 9.—KELLOGG, New Mallophaga, I, 1896, p. 98, pl. IV, fig. 4.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 4.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 56.

Recorded by Kellogg from *Larus argentatus smithsonianus*, *L. canus*, *L. occidentalis*, *L. brachyrhynchus*, *L. glaucescens*, *L. heermanni*, *L. vegæ*, *L. delawarensis*, *L. glaucus*, and *Rissa tridactyla pollicaris* (all from Bay of Monterey, California); also from *L. delewarensis* (Lawrence, Kansas); *Larus* sp. (Baja California), and *L. glaucescens* (North Pacific Ocean, off Alaska); also males, females, and young, hence probably not stragglers, from *Colymbus nigricollis californicus* and *Urinator lumme* (Bay of Monterey, California). Recorded by Osborn from *Larus philadelphia* (Burnett collection) and from "herring gull" (Cassino collection).

Recorded by European authors from a dozen or more species of *Larus* (including some of the species listed above), and from *Lestris pomarinus* and *crespictatus*, *Sula alba*, *Tringa islandica* (probably mistaken determination), and *Brachyotus otus*.

Docophorus melanocephalus BURMEISTER, Handb. d. Ent., II, 1839, p. 426.—KELLOGG, New Mallophaga, I, 1896, p. 99, pl. IV, fig. 6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 218.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 56.

Recorded by Kellogg from *Sterna maxima* (Bay of Monterey, California); by Osborn from "great Cayenne tern" (Burnett collection); by Kellogg and Chapman from *Stercorarius pomarinus* (Bay of Monterey, California).

Recorded by European authors from *Sterna caspia*, *S. cantiaca*, *S. bergi*, and *Larus ridibundus* and *L. cirrocephalus* (Paraguay).

Docophorus occidentalis KELLOGG, New Mallophaga, I, 1896, p. 89, pl. III, fig. 7.

From *Fulmarus glacialis glupischa* and *F. g. rodgersii*, and probably as a straggler, from *Oidemia perspicillata* (all hosts from Bay of Monterey, California).

Docophorus validus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 56, pl. V, fig. 2.

From *Puffinus gavia* (Bay of Monterey, California).

Docophorus phaetonus OSBORN, Proc. U. S. Nat. Museum, 1889, XII, p. 189.

From *Phaeton aethereus* (Lower California or Panama).

Docophorus bassanae DENNY, Monograph. Anoplur. Brit., 1842, p. 110, pl. VI, fig. 3; pl. VII, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.

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Recorded by Osborn; "host unknown, probably the gannett (Burnett collection)."

Recorded by European authors from *Sula bassana*, *Phalacrocorax carbo*, and *Sterna hirundo*.

Docophorus icterodes NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 290.—KELLOGG, New Mallophaga I, 1896, p. 96, pl. IV, fig. 1.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 4.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 58.

Recorded by Kellogg from *Oidemia perspicillata*, *Erismatura rubida*, and *Merganser serrator* (Bay of Monterey, California), and from *Anas boscas*, *Anas carolinensis*, *Aythya americana*, *Aythya affinis*, and *Dafila acuta* (Lawrence, Kansas), and from *Merganser serrator* (Kadiak Island, Alaska). Recorded by Osborn as "a very common species on many kinds of ducks. Specimens have been noted in the Cassino, Burnett, and Stejneger collections, and also taken at Ames, Iowa." Recorded by Kellogg and Chapman from *Aythya marila nearctica* and *Aythya affinis* (Palo Alto, California).

Recorded by European writers from *Mergus albellus*, *M. merganser*, *Anas rufina*, *A. boscas*, *A. fuligula*, *A. glacialis*, *A. albifrons*, *A. clypeata*, *A. crecca*, *A. stelleri*, *Fuligula marila*, *F. ferina*, and *Mareca penelope*. Recorded by Piaget as "sur toute espèce de canards." Piaget believes *Docophorus natatorum* Rudow,[1] from *Platypus glacialis*, *Bernicla torquata*, *Chenalopex aegypticus*, and *Anas fusca*, to be *D. icterodes*. He considers *D. adustus* Giebel,[2] from a domestic duck, *D. brevimaculatus* Giebel,[2] from *Anser albifrons*, and *D. brunneiceps* Giebel,[2] from *Anser cygnoides* as varieties merely of *D. icterodes*. Piaget also refers to a *Docophorus*, from *Podiceps cristatus*, as a variety of *icterodes*.

Docophorus cygni DENNY, Monograph. Anoplur. Brit., 1842, p. 95, pl. I, fig. 1.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 197; Insects Affecting Domestic Animals, 1896, p. 217.

Recorded by Osborn from *Olor buccinator* (?) (Ames, Iowa).

Recorded by European authors from *Cygnus bewickii*, *C. musicus*, *Dendrocygna arborea*, and the "bean goose" (Denny, Great Britain).

Docophorus sphenophorus NITZSCH (ed. Giebel); Zeitschr. f. ges. Naturwiss., XXVIII, 1866, p. 310.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.

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[1] Zeitschr. f. ges. Naturwiss., XXXV, 1870, p. 453.

[2] Insecta Epizoa, p. 113.

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Recorded by Osborn from Cassino collection, "without indication of host or locality, but it is doubtless American, probably from spoonbill" (*Ajaja ajaja*).

Recorded by European authors from *Platalea leucorordia* and *Ibis religiosa*.

Docophorus bisignatus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., XXVIII, 1866, p. 362.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.

Recorded by Osborn from *Ibis* (*Guara*) *alba* (collection of C. B. Cook).

Recorded by Nitzsch-Giebel from *Ibis falcinellus*.

Docophorus quadraticeps KELLOGG, New Mallophaga, I, 1896, p. 85, pl. III, fig. 5.

From *Fulica americana* (Bay of Monterey, California).

Docophorus minuto-trabeculatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 221.

From *Fulica americana* ("collected from a stuffed bird in the museum of the Iowa Agricultural College").

Docophorus pertusus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 290.—KELLOGG, New Mallophaga, I, 1896, p. 97, pl. IV, figs. 2, 3.

Recorded by Kellogg from *Fulica americana* (Lawrence, Kansas, and Bay of Monterey, California); also from *Erismatura rubida* and *Colymbus nigricollis californicus* (Bay of Monterey, California).

Recorded by Nitzsch-Giebel from *Fulica atra* (probably Europe).

Docophorus fusiformis DENNY, Monograph. Anoplur. Brit., 1842, p. 84, pl. I, fig. 2.—OSBORN, Insects Affecting Domestic Animals, 1897, p. 217.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 58, pl. V, fig. 3.

Recorded by Osborn (a typographical error makes the species read "fissiformis") from "black-billed sandpiper" (Burnett collection). Recorded by Kellogg and Chapman from *Tringa minutilla* (Palo Alto, California).

Recorded by European authors from *Tringa minuta* and *T. subarquata*. Piaget believes *D. variabilis* Denny,[1] from *Tringa variabilis*, and *D. canuti* Denny,[2] from *Tringa canutus*, to be merely varieties of *fusiformis*.

Docophorus cordiceps GIEBEL, Insecta. Epizoa., 1874, p. 103.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. V, pl. 1, fig. 2.

Recorded by Kellogg from *Tringa macularia* (Panama) and *Tringa* sp. (Baja California).

Recorded by European authors from *Totanus glareola*, *T. maculatus*, *T. calidris*, *T. hypoleucos*, *T. fuscus*, *T. ochropus*, *Calidris aren-*

[1] Monograph. Anoplur. Brit., p. 71, pl. III, fig. 4.
[2] Idem, p. 84, pl. III, fig. 5.

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aria, *Machetas pugnax*, *Strepsilas interpres*, *Charadrius hiaticula*. Denny also records it from *Lestris parasiticus* and *L. pomarinus*, and Grube from *Larus richardsoni* and *Larus fuscus*. I suspect that Denny and Grube have confounded *cordiceps* and *lari* here, especially as Grube records *lari* from *Tringa islandica*.

Docophorus testudinarius DENNY, Monograph. Anoplur. Brit., 1842, p. 96, pl. I, fig. 6.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 197; Insects Affecting Domestic Animals, 1896, p. 217.

Recorded by Osborn from *Numenius longirostris* (Ames, Iowa) and from *Bartramia longicauda* (Burnett collection).

Recorded by European authors from *Numenius arquatus*.

Docophorus fuliginosus KELLOGG, New Mallophaga, I, 1896, p. 80, pl. III, fig. 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 59.

Recorded by Kellogg from *Charadrius squatarola* (Lawrence, Kansas, and Palo Alto, California); by Kellogg and Chapman from *Charadrius squatarola* and *Aegialitis semi-palmata* (Pacific Grove, California).

Docophorus platystomus NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 426.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 197; Insects Affecting Domestic Animals, 1896, p. 216.

Recorded by Osborn from *Accipiter velox* (Rhode Island), *Buteo Swainsoni* (Iowa?), and *Aquila imperialis* (Burnett collection).

Recorded by European authors from *Buteo vulgaris* and from "rough-legged buzzard" (Denny, Great Britain); also a variety by Piaget from *Haliastur indus*.

Docophorus buteonis PACKARD, American Naturalist, 1870, IV, p. 93, pl. I, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 218.

Recorded by Packard from *Buteo lineatus* (America); by Osborn from same host (probably Hanover, New Hampshire), and from *Tryannus atra* (Burnett collection).

Docophorus taurocephalus KELLOGG, New Mallophaga, II, 1896, p. 471, pl. LXV, fig. 1.

From *Archibuteo lagopus sancti-johannis* (Lawrence, Kansas).

Docophorus pictus GIEBEL, Insecta Epizoa, 1874, p. 74.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 59, pl. V, fig. 4.

Recorded by Kellogg and Chapman from *Aquila chrysætos* (Palo Alto, California). Recorded by Nitzsch-Giebel from same host.

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Decophorus halieti OSBORN, Insects Affecting Domestic Animals, 1896, p. 218.

From *Haliætus leucocephalus* (Florida).

Docophorus rostratus NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 427.—KELLOGG, New Mallophaga, II, 1896, p. 486, pl. LXVI, fig. 5.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 218.

Recorded by Kellogg from *Strix pratincola* (Soquel, California); by Osborn from same host, collection of Prof. Lawrence Bruner (Nebraska?).

Recorded by European authors from *Strix flammea.*

Docophorus cursor NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 426.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 197.—KELLOGG, New Mallophaga, II, 1896, p. 484, pl. LXVI, fig. 1.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 216.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 60.

Recorded by Osborn from *Otus vulgaris* var *wilsonii* (*Asio wilsonianus*) (Ames, Iowa, and Lincoln, Nebraska); by Kellogg from *Bubo virginianus* (Lawrence, Kansas), and by Kellogg and Chapman from *Asio wilsonianus* (Ontario, California).

Recorded by European authors from *Strix bubo*, *S. otus*, and *S. brachyotus.*

[**Docophorus syrnii** PACKARD, description?

In Gurlts "Neues Verzeichniss d. Thiere, auf welchen Schmarotzer-Insekten leben", Archiv f. Naturgeschichte, XLIV, No. 1, p. 185, "*Docophorus syrnii* Packard" is recorded as parasite of *Strix nebulosa.* Neither Osborn nor I have been able to find the original record for this species.]

Docophorus speotyti OSBORN, Insects Affecting Domestic Animals, 1896, p. 222, fig. 144.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 60.

Recorded by Osborn from *Speotyto cunicularia hypogæa* (Lincoln, Nebraska, and Fort Collins, Colorado); recorded by Kellogg and Chapman from *Syrnium nebulosum* (La Honda, California).

Docophorus bubonis OSBORN, Insects Affecting Domestic Animals, 1896, p. 219.

From *Bubo virginianus* (Pennsylvania).

Docophorus ceblebrachys NITZSCH, ed. Giebel, Zeitsch. f. ges. Naturwiss., 1861, XVII, p. 528.—KELLOGG, New Mallophaga, II, 1896, p. 485, pl. LXVI, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 216.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 61.

Recorded by Kellogg from *Nyctea nyctea* (Lawrence, Kansas); by Osborn from same host (Iowa and other localities in America); by Kellogg and Chapman from same host (Pullman, Washington).

Recorded by European authors from same host.

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Docophorus coccygi OSBORN, Insects Affecting Domestic Animals, 1896, p. 222, fig. 143.

From "yellow-billed cuckoo" (*Coccyzus americanus*) (Lincoln, Nebraska).

Docophorus latifrons NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 290.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 5, pl. I, figs. 5 and 8.

From *Coccyzus californicus occidentalis* (Baja California).

Recorded by European authors from *Cuculus canorus* and in a single instance from *Yunx torquilla* (Denny, England).

Docophorus evagans KELLOGG, New Mallophaga, II, 1896, p. 480, pl. LXVI, fig. 2.

From *Dryobates pubescens* (Lawrence, Kansas).

Docophorus superciliosus NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 427.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 216.

Recorded by Osborn from *Dryobates villosus* (Cassino collection) (North America).

Recorded by European authors from *Picus major* and *P. viridis*.

Docophorus singularis KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 61, pl. V, fig. 5.

From *Dryobates nuttalli* (Ione, California).

Docophorus californiensis KELLOGG, New Mallophaga, II, 1896, p. 483, pl. LXVI, fig. 6.—KELLOGG, Mallophaga from Birds of Panama, Baja California and Alaska, in New Mallophaga, III, 1899, p. 6.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 63.

Recorded by Kellogg from *Melanerpes formicivorous bairdii* (Palo Alto, California) and from *M. f. angustifrons* (Baja California); by Kellogg and Chapman from *Sphyrapicus thyroideus* (Eldorado County, California) and from *Xenopicus albolarvatus* (Eldorado County and Kings River Canyon, California).

Docophorus alienus KELLOGG, New Mallophaga, II, 1896, p. 473, pl. LXV, fig. 2.

From *Colaptes auratus* (Lawrence, Kansas).

Docophorus jungens KELLOGG, New Mallophaga, II, 1896, p. 481, pl. LXVI, fig. 4.

From *Colaptes auratus* (Lawrence, Kansas).

Docophorus rufus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 7, pl. I, figs. 6 and 9.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 63.

Recorded by Kellogg from *Myiarchus cinerascens nuttingi* (Baja California); by Kellogg and Chapman from *Myiarchus cinerascens* (Ontario, and Alameda County, California).

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Docophorus fusco-ventralis OSBORN, Insects Affecting Domestic Animals, 1896, p. 221.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 64.

Recorded by Osborn from *Contopus virens* (Cornell University collection, also Burnett collection) (North America); by Kellogg and Chapman from *Myiarchus cinerascens* (Palo Alto, California).

Docophorus distinctus KELLOGG, New Mallophaga, II, 1896, p. 477, pl. LXV, fig. 5.

From *Corvus corax sinuatus* (Colorado).

Docophorus corvi OSBORN, Insects Affecting Domestic Animals, 1896, p. 220, fig. 142.

From *Corvus americanus* (Ames, Iowa). "This is probably Packard's *Lipeurus corvi*, which was evidently described from an immature specimen" (Osborn).

Docophocus transpositus KELLOGG, New Mallophaga, II, 1896, p. 478, pl. LXV, fig. 6.

From *Molothrus ater* (Lawrence, Kansas).

Docophorus agelaii OSBORN, Insects Affecting Domestic Animals, 1896, p. 220.

From *Agelaius phœniceus* (North America).

Docophorus quiscali OSBORN, Insects Affecting Domestic Animals, 1896, p. 219, fig. 141.

From "crow blackbird" (*Quiscalus quiscula ?*) (Ames, Iowa).

Docophorus compar PIAGET, Les Pediculines, 1880, p. 61, pl. VII, fig. 1.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 217.

Recorded by Osborn from *Loxia curvirostra minor* (Ames, Iowa).

Recorded by Piaget from *Loxia curvirostra* (Museum of Leyden).

Docophorus hamatus PACKARD, American Naturalist, 1870, IV, p. 94, pl. I, fig. 7.

From *Emberiza* (*Plectrophenax*) *nivalis* (North America).

Docophorus mirinotatus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 65, pl. V, fig. 6.

From *Junco hyemalis thurberi* (Kings River Canyon, California).

Docophorus communis NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 290.—KELLOGG, New Mallophaga, II, 1896, p. 486, pl. LXVI, fig. 7.—OSBORN, Insects Affecting Domestic Animals, 1897, p. 216.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 9.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 64.

Recorded by Kellogg from *Otocoris alpestris*, *Agelaius phœniceus*, *Sturnella magna neglecta*, *Calcarius lapponicus*, *Junco hyemalis*,

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Cardinalis cardinalis, *Ampelis garrulus*, *Lanius ludovicianus excubitorides*, *Harporphynchus rufus*, and *Merula migratoria* (all from Lawrence, Kansas); *Icterus bullocki*, *Carpodacus purpureus californicus*, *Carpodacus mexicanus frontalis*, *Spinus pinus*, *Spinus psaltria*, and *Ammodramus sandvicensis* (all from Palo Alto, California); *Cardinalis cardinalis igneus* (Baja California). Recorded by Osborn from *Lanius borealis* (Ames, Iowa) and "shore lark" (*Otocoris* sp.) (Burnett collection). Recorded by Kellogg and Chapman from the following birds taken in California (in addition to specimens of several of the host species already listed): *Myiarchus cinerascens*, *Empidonax difficilis*, *Otocoris alpestris chrysolæma*, *Cyanocitta stelleri frontalis*, *Aphelocoma californica*, *Scolecophagus cyanocephalus*, *Chondestes grammacus strigatus*, *Zonotrichia leucophrys intermedia*, *Zonotrichia l. gambeli*, *Zonotrichia coronata*, *Spizella socialis arizonæ*, *Amphispiza belli*, *Melospiza fasciata samuelis*, *Pipilo fuscus crissalis*, *Habia melanocephala*, *Guiraca cœrulea eurhyncha*, *Piranga ludoviciana*, *Ampelis cedrorum*, *Lanius borealis*, *Lanius ludovicianus gambeli*, *Vireo solitarius cassini*, *Dendroica æstiva*, *Thryothorus bewickii spilurus*, *Parus inornatus*, *Turdus aonalaschke auduboni*, *Sialia mexicana occidentalis*.

Recorded by European authors from many species of passerine birds.

Docophorus panamensis KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 9, pl. I. fig. 1.

From *Phœnicothrampis fuscicauda* (Panama).

Docophorus domesticus KELLOGG, New Mallophaga, II, 1896, p. 475, pl. LXV, fig. 4; Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 10.

From *Progne subis* (Lawrence, Kansas) and *Progne subis hesperus* (Baja California).

Docophorus excisus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 290; var. *major* KELLOGG, New Mallophaga, II, 1896, p. 489.

Variety *major* recorded by Kellogg from *Petrochelidon lunifrons* and *Tachycineta bicolor* (Palo Alto, California, and Lawrence, Kansas).

Recorded by European authors from *Hirundo urbica*, *H. rustica*, *H. domestica*, *Cypselus apus*, and *Cotyle riparia*.

Docophorus laticeps GIEBEL, Insecta Epizoa, 1874, p. 88.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 11, pl. I, figs. 4 and 7.

Variety *americanus* recorded by KELLOGG from *Cinclus mexicanus* (Kodiak Island, Alaska).

The species recorded by European authors from *Cinclus aquaticus*.

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Docophorus mirus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 67, pl. v, fig. 7.

From *Thyrothorus bewickii spilurus* (Palo Alto, California).

Docophorus rutteri KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 12, pl. I. fig. 3.

From *Parus atricapillus occidentalis* (Kadiak Island, Alaska).

Docophorus sialii OSBORN, Insects Affecting Domestic Animals, 1896, p. 220.

From *Sialia sialis* (Merriam, Colorado).

Docophorus incisus KELLOGG, New Mallophaga, II, 1896, p. 474, pl. LXV, fig. 3.

From *Sialia sialis* (Lawrence, Kansas) and *Ampelis cedrorum* (Lawrence, Kansas).

Genus NIRMUS Nitzsch.

Nirmus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 291.

Nirmus fuscomarginatus DENNY, Monog. Anoplur. Brit., 1842, p. 136, pl. X, fig. 1.—KELLOGG and CHAPMAN, var. *americanus*, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 69, pl. v, fig. 9.

Variety *americanus* recorded by Kellogg and Chapman from *Colymbus nigricollis californicus*, *Cepphus columba*, and *Larus argentatus smithsonianus* (straggler?), all hosts from Bay of Monterey, California.

The species is recorded by European authors from *Podiceps auritus* and *P. cristatus*.

Nirmus pacificus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 70, pl. v, fig. 8.

From *Lunda cirrhata*, *Cepphus columba*, and *Puffinus griseus* (Bay of Monterey, California).

Nirmus maritimus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 72, pl. VI, fig. 1.

From *Cerorhinca monocerata*, *Ptychoramphus aleuticus*, *Synthliboramphus antiquus*, and as straggler, probably, from *Fulmarus glacialis glupischa* (all from Bay of Monterey, California).

Nirmus citrinus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss, 1866, XXVIII, p. 378.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.

Recorded by Osborn from *Synthliboramphus antiquus Simorhynchus cristatellus*, *Sim. pygmæus*, *Sim. pusillus* (Stejneger collection), and *Alleus* (*Alle*) *alle* (Cassino collection) (North America).

Recorded by European writers from *Alca torda*.

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Nirmus triangulatus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss, 1866, XXVIII, p. 378.—KELLOGG and CHAPMANN, Mallophaga from Birds of California, in New Mallophaga, III, 1897, p. 74, pl. VI, fig. 2.

Recorded by Kellogg and Chapman from *Stercorarius pomarinus* (Bay of Monterey, California).

Recorded by European authors from *Lestris crespidata*, *L. richardsoni*, *Stercorarius pomarinus*, and *Larus canus*.

Nirmus lineolatus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 376.—KELLOGG, New Mallophaga, I, 1896, p. 113, pl. VI, figs. 7, 8, 9.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.—KELLOGG and CHAPMAN (var. *atrimarginatus*), Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 75.

Recorded by Kellogg from *Larus argentatus smithsonianus*, *L. brachyrhynchus*, *L. glaucescens*, *L. canus*, *L. vegæ*, *L. occidentalis*, *L. heermani*, *L. californicus*, and *L. delawarensis* (all from Bay of Monterey, California). Recorded by Osborn from "herring gull, in collection of S. E. Cassino; Baker collection, Elkhart, Indiana."

Recorded by European authors from *Larus canus*, *L. argentatus*, *L. glaucus*, and *L. tridactylus*.

Variety *atrimarginatus* Kellogg and Chapman, recorded by Kellogg and Chapman from *Larus canus*, *L. vegæ*, *L. brachyrhynchus*, and *Rissa tridactyla pollicaris*.

Nirmus punctatus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 291.—KELLOGG, New Mallophaga, I, 1896, p. 109, pl. VI, figs. 1 and 2; Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 13.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 75.

Recorded by Kellogg from *Larus occidentalis* (Bay of Monterey, California) and *Larus* sp. (Baja California); by Kellogg and Chapman from *Larus delawarensis* (Bay of Monterey, California).

Recorded by European authors from *Larus ridibundus*, *L. dominicanus* (Chile), *L. crassirostris* (China), and *L. ichthyætos* (Valgas).

Nirmus felix GIEBEL, Insecta Epizoa, 1874, p. 175.—KELLOGG, New Mallophaga, I, 1896, p. 110, pl. VI, figs. 3, 4.

Recorded by Kellogg from *Larus heermani* (Bay of Monterey, California).

Recorded bp European authors from same host.

Nirmus præstans KELLOGG, New Mallophaga, I, 1896, p. 99, pl. V, figs. 1, 2.

From *Sterna maxima* (Bay of Monterey, California).

Nirmus hebes KELLOGG, New Mallophaga, I, 1896, p. 101, pl. V, fig. 3.

From *Sterna maxima* (Bay of Monterey, California).

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Nirmus giganticola KELLOGG, New Mallophaga, I, 1896, p. 105, pl. V, fig. 6.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 75.

From *Diomedea albatrus* (Bay of Monterey, California).

Nirmus furvus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 374.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 225.—KELLOGG (var. *ravus* Kellogg), Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1897, p. 14, pl. II, fig. 1.

Recorded by Osborn from *Phalaropus tricolor* (Museum, Iowa Agricultural College).

Recorded by European authors from several species of *Totanus* and from godwits and plovers. The species is not sufficiently sharply defined to list accurately its hosts.

Var. *ravus* Kellogg from *Actitis macularia* (Panama).

Nirmus piceus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 291.

N. pileus N., KELLOGG, New Mallophaga, I, 1896, p. 113, pl. VI, fig. 6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.

Recorded by Kellogg from *Recurvirostra americana* (Lawrence, Kansas); by Osborn from same host (Museum, Iowa Agricultural College).

Recorded by European authors from *Recurvirostra avocetta*. The specific name *pileus* has been used for this form ever since the first reference after Nitzsch, evidently from mere carelessness.

Nirmus signatus PIAGET, Les Pédiculines, 1880, p. 186, pl. XV, fig. 8.—KELLOGG, New Mallophaga, I, 1896, p. 112, pl. VI, fig. 5.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.

Recorded by Kellogg from *Recurvirostra americana* (Lawrence, Kansas); by OSBORN from same host, "collected from stuffed bird in museum of Iowa Agricultural College."

Recorded by European authors from *Recurvirostra avocetta*.

Nirmus fissus NITZSCH, Germar's Mag. Ent., 1818, III, p. 291.—KELLOGG, var. *major* Kellogg, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 15, pl. II, fig. 2.

Variety *major* Kellogg, from *Tringa* sp. (Baja California). The species (under name *bicuspis*) is recorded by European authors from *Charadrius minor*, *Ch. hiaticula*, *Ch. morinellus*, *Totanus calidris*, *Recurvirostra avocetta*, and *Vanellus cristatus*.

Nirmus complexivus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 75, pl. VI, fig. 3.

From *Calidris arenaria* (Pacific Grove, California) and *Tringa minutilla* (Palo Alto, California).

Nirmus actophilus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 78, pl. VI, fig. 4.

From *Calidris arenaria* (Pacific Grove, California).

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Nirmus cordatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 228, pl. II, fig. *a*.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 80.

Recorded by Osborn from *Limosa hæmastica* (Burnett collection) (North America); by Kellogg and Chapman from *Limosa fedoa* (Bay of Monterey, California).

Nirmus incoenis KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 81, pl. VI, fig. 5.

From *Charadrius squatarola* (Pacific Grove, California).

Nirmus orarius KELLOGG, New Mallophaga, I, 1896, p. 104, pl. V, fig. 5.

From *Charadrius dominicus* (Lawrence, Kansas).

Nirmus opacus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 83, pl. VI, fig. 6.

From *Ægialitis semipalmata* (Pacific Grove, California).

Nirmus parallelus OSBORN, Insects Affecting Domestic Animals, 1896, p. 229, pl. II, fig. *d*.

From *Ægialitis vocifera* (Burnett collection) (North America).

Nirmus boephilus KELLOGG, New Mallophaga, I, 1896, p. 107, pl. V, fig. 7.

From *Ægialitis vocifera* (Lawrence, Kansas).

Nirmus abruptus OSBORN, Insects Affecting Domestic Animals, 1896, p. 229, pl. II, fig. *c*.

From *Colinus virginianus* (Burnett collection) (North America).

Nirmus fuscus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1861, XVII, pp. 523–525.—OSBORN, Notes on Mallophaga and Pediculidæ. Canad. Ent., XVI, 1884, p. 197.—KELLOGG, New Mallophaga, II, 1896, p. 499, pl. LXVII, fig. 7.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 223.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 15.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 85.

Recorded by Osborn from *Buteo swainsoni* (Ames, Iowa), and *Accipiter velox* "(Merriam)". Recorded by Kellogg from *Buteo swainsoni*, *Circus hudsonius*, and *Archibuteo lagopus sancti-johannis* (all from Lawrence, Kansas); and from *Falco sparverius peninsularis*, *F. peregrinus anatum*, and *Buteo borealis lucusanus* (all from Baja California); also from *Falco sparverius* (Panama). Recorded by Kellogg and Chapman from *Falco sparverius deserticola*, *Buteo borealis calurus*, and *Elanus leucurus* (Palo Alto, California), and from *Accipiter atricapillus striatatus* (Pullman, Washington).

Recorded by European authors from many species of hawks, kites, and eagles (*Milvus*, *Buteo*, *Falco*, *Circus*, *Aquila*, and *Archibuteo*.

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Nirmus discocephalus NITZSCH, Germar's Mag. Ent., 1818, III, p. 291.—KELLOGG (var. *amblys* Kellogg) New Mallophaga, II, 1897, p. 498, pl. LXVII, fig. 6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 223.

Variety *amblys* Kellogg, from *Haliætus leucocephalus* (Lawrence, Kansas). Recorded by Osborn from same host (Burnett collection) (North America).

Recorded by European authors from *Haliætus albicella.*

Nirmus splendidus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 16, pl. II, figs. 3 and 6.

From *Polyborus cheriway* (Baja California).

Nirmus fenestratus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVII, p. 117.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.

Recorded by Osborn from *Coccyzus erythrophthalmus* (Burnett collection) (North America).

Recorded by European authors from *Cuculus canorus.*

Nirmus atopus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 18, pl. II, fig. 4.

From *Piaya cayana thermophila* (Panama).

Nirmus marginatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 228, pl. II, fig. *b.*

From *Ceophlœus pileatus* (Burnett collection) (North America).

Nirmus candidus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVII, p. 117; XXVIII, p. 368.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198; Insects Affecting Domestic Animals, 1896, p. 224.

Recorded by Osborn from *Melanerpes carolinus* (Burnett collection), *Colaptes auratus*, and *Picus villosus* (locality?).

Recorded by European authors from *Picus canus* and *P. viridis.*

Nirmus eustigmus KELLOGG, New Mallophaga, II, 1896, p. 493, pl. LXVII, fig. 3.

From *Trochilus annæ* (Palo Alto, California).

Nirmus tyrannus OSBORN, Insects Affecting Domestic Animals, 1896, p. 228.

From *Tyrannus* sp. (Burnett collection).

Nirmus vulgatus KELLOGG, New Mallophaga, II, 1896, p. 496, pl. LXVII, fig. 5.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 86.

Recorded by Kellogg from *Carpodacus purpureus californicus, C. mexicanus frontalis, Zonotrichia coronata, Z. gambeli, Pipilo maculatus megalonyx*, and *Pipilo fuscus crissalis* (all from Palo Alto, California); and from *Junco hyemalis* and *Merula migratoria* (Law-

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rence, Kansas). Recorded by Kellogg and Chapman from (in addition to several hosts already listed) *Guiraca cœrulea*, *Chondestes grammacus strigatus*, *Passerina amœna*, *Parus gambeli*, *Parus rufescens neglectus*, *Sialia mexicanus occidentalis*, *Dendroica æstiva*, *Helminthophila celata lutescens*, *Trochilus alexandri*, *Cyanocitta stelleri frontalis*, *Cinclus mexicanus*, *Empidonax difficilis*, and *Myiarchus cinerascens* (all from California).

Nirmus fœdus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 87, pl. VI, fig. 7.

From *Myiarchus cinerascens*, *Sayornis saya*, *Tyrannus verticalis*, *Icteria virens longicauda*, *Lanius ludovicianus gambeli*, and *Phainopepla nitens* (all from Ontario, California).

Nirmus ductilis KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 89, pl. VI, fig. 8.

From *Empidonax difficilis* (Ontario, California).

Nirmus rotundatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 226.

From *Corvus americanus* (Ames, Iowa.)

Nirmus secondarius OSBORN, Insects Affecting Domestic Animals, 1896, p. 227.

From *Corvus americanus* (Ames, Iowa).

Nirmus ornatissimus GIEBEL, Insecta Epizoa, 1874, p. 144.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224 (var. *xanthocephali* Osborn) (loc. cit.).

Recorded by Osborn from *Agelaius phœniceus* (Cassino collection); var. *xanthocephali* Osborn from *Xanthocephalus xanthocephalus* (Fairfax, Iowa).

Recorded by European authors from *Agelaius phœnicurus*.

Nirmus illustris KELLOGG, New Mallophaga, II, 1896, p. 494, pl. LXVII, fig. 4.

From *Agelaius phœniceus* (Lawrence, Kansas).

Nirmus virgatus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 19, pl. II, fig. 5.

From *Amblycercus holosericeus* (Panama).

Nirmus picturatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 226.

From *Sturnella magna* (Ames, Iowa).

Nirmus cyclothorax NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVII, p. 117.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 224.

From *Passer domesticus* (Laurent collection) and *Acanthis linaria* (?) (C. B. Cook collection).

Nirmus thoracicus PACKARD, Amer. Naturalist, 1870, IV, p. 94, pl. I, fig. 5.

From *Plectrophenax nivalis* (North America).

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Nirmus lautiusculus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 90, pl. VI, fig. 9.

From *Amphispiza belli* (Ontario, California).

Nirmus pallidus OSBORN, Insects Affecting Domestic Animals, 1896, p. 227.

From *Habia ludoviciana* (Ames, Iowa).

Nirmus gracilis NITZSCH, Germar's Mag. Ent., 1818, III, p. 291.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 225.

Recorded by Osborn from *Progne subis* (Ames, Iowa).

Recorded by European authors from *Hirundo urbica.*

Nirmus longus KELLOGG, New Mallophaga, II, 1896, p. 490, pl. LXVII, fig. 1.—KELLOGG and CHAPMAN, var. *domesticus* Kellogg and Chapman, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 92.

Recorded by Kellogg from *Petrochelidon lunifrons* (Palo Alto, California) and *Tachycineta bicolor* (Lawrence, Kansas). Variety, *domesticus* Kellogg and Chapman from *Chelidon erythrogaster* (Palo Alto, California).

Nirmus brachythorax GIEBEL, Insecta Epizoa, 1874, p. 134.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198; Insects Affecting Domestic Animals, 1896, p. 223.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 93.

Recorded by Osborn from *Ampelis garrulus* (locality?) and *Ampelis cedrorum* (Ames, Iowa); by Kellogg and Chapman from *Ampelis cedrorum* (Palo Alto, California).

Recorded by European authors from *Ampelis garrulus* and *A. carolinensis.*

Nirmus peninsularis KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 21, pl. II, fig. 9.

From *Phainopepla nitens* (Baja California).

Nirmus interpositus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 23, pl. II, fig. 7.

From *Dendroica æstiva* (Panama).

Nirmus orpheus OSBORN, Insects Affecting Domestic Animals, 1896, p. 227.

From *Galeoscoptes carolinensis* (Burnett collection).

Nirmus audax KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 25, pl. II, fig. 8.

From *Psaltriparus flaviceps* (Baja California).

Nirmus simplex KELLOGG, New Mallophaga, II, 1896, p. 492, pl. LXVII, fig. 2.

From *Merula migratoria* (Lawrence, Kansas).

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Genus LIPEURUS Nitzsch.

Lipeurus NITZSCH, Germar's Mag. d. Ent. 1818, III, p. 292.

Lipeurus laculatus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 93, pl. VIII, fig. 1.

From *Stercorius pomarinus* and *Puffinus creatopus* (Bay of Monterey, California).

Lipeurus ferox GIEBEL, Zeitschr. f. ges. Naturwiss., 1867, XXIX, p. 195.—KELLOGG, New Mallophaga, I, 1896, p. 127, pl. IX, figs. 1, 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 97.

Lipeurus diomedea F. OSBORN, Proc. U. S. Nat. Mus., 1880, XII, p. 189.

Recorded by Kellogg from *Diomedea albatrus* (Bay of Monterey, California). Recorded by Osborn from *Diomedea brachyura* (locality?).

Recorded by European authors from *Diomedea exulans*, *D. melanophrys*, and *D. brachyura*.

Lipeurus densus KELLOGG, New Mallophaga, I, 1896, p. 114, pl. VII, figs. 1, 2; Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 28, pl. III, fig. 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 96.

Recorded by Kellogg from *Diomedea albatrus* (Bay of Monterey, California)? and from *D. nigripes* (North Pacific Ocean, off Alaska).

Lipeurus confidens KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 26, pl. III, fig. 1.

From *Diomedea nigripes* (North Pacific Ocean, off Alaska).

Lipeurus concinnus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 97, pl. VII, fig. 2.

From *Diomedea albatrus* (Bay of Monterey, California).

Lipeurus varius KELLOGG, New Mallophaga, I, 1896, p. 116, pl. VII, figs. 3, 4.

From *Fulmarus glacialis glupischa* and *F. g. rodgersii* (Bay of Monterey, California).

Lipeurus celer KELLOGG, New Mallophaga, I, 1896, p. 117, pl. VII, figs. 5, 6.

From *Fulmarus glacialus glupischa* and *F. g. rodgersii* (Bay of Monterey, California).

Lipeurus diversus KELLOGG, New Mallophaga, I, 1896, p. 123, pl. VIII, figs. 3, 4.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 95.

Recorded by Kellogg from *Puffinus gavia* (Bay of Monterey, California); by Kellogg and Chapman, from *Puffinus gavia*, *P. griseus*, *P. creatopus*, *P. bulleri*, *P. tenuirostris*, and stragglers probably from *Diomedea albatrus* (all from Bay of Monterey, California).

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Lipeurus testaceus TASCHENBERG, Die Mallophagen, 1882, p. 135, pl. V, fig. 3.—KELLOGG, New Mallophaga, I, 1896, p. 130, pl. XI, figs. 2, 4.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 100.

Recorded by Kellogg from *Puffinus gavia* (Bay of Monterey, California); by Kellogg and Chapman from *P. creatopus*.

Recorded by Taschenberg from *Procellaria capensis*.

Lipeurus limitatus KELLOGG, New Mallophaga, I, 1896, p. 124, pl. VIII, figs. 5, 6.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 100.

Recorded by Kellogg from *Puffinus griseus* (Bay of Monterey, California); by Kellogg and Chapman from *Puffinus gavia*, *P. griseus*, *P. bulleri*, and *P. tenuirostris* (Bay of Monterey, California).

Lipeurus fuliginosus TASCHENBERG, Die Mallophagen, 1882, p. 156, pl. IV, fig. 3.—KELLOGG and CHAPMAN (var. *major*, Kellogg and Chapman), Mallophaga from Birds of California, in New Mallophaga, III, 1897, p. 100, pl. VII, fig. 3.

Variety *major* Kellogg and Chapman from *Puffinus gavia* and *P. creatopus* (Bay of Monterey, California). The species recorded by Taschenberg from *Diomedea exulans* and *D. chlororhyncha*.

Lipeurus subangusticeps PIAGET, Les Pédiculines, 1880, p. 308, pl. XXV, fig. 5.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 235, pl. II, fig. *g*.

Recorded by Osborn from "*Thalassidroma wilsoni*" (*Oceanites oceanicus?*) (Burnett collection).

Recorded by European authors from *Thalassidroma leachi* and *Th. pelagica*.

Lipeurus pullatus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 387.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

Recorded by Osborn from *Sula bassana* and *Sula alba* (Burnett collection).

Lipeurus faralloni KELLOGG (Nirmus), New Mallophaga, I, 1896, p. 103, pl. V, fig. 4.—KELLOGG and CHAPMAN (Lipeurus), Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 101, pl. VII, fig. 4.

Recorded by Kellogg from *Phalacrocorax dilophus albociliatus*, and a straggler, probably, from *Colymbus septentrionalis* (Bay of Monterey, California); by Kellogg and Chapman, from *Phalacrocorax penicillatus* (Bay of Monterey, California).

Lipeurus longicornis PIAGET, Les Pédiculines, 1880, p. 334, pl. XXVII, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 233.

Recorded by Osborn from *Phalacrocorax dilophus* (Ames, Iowa).

Recorded by European authors from *Phalacrocorax carbo* and *Ph. cristatus*. A straggler, probably, recorded by Denny from *Hæmatopus ostralegus*.

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Lipeurus toxoceros NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 386.—KELLOGG, New Mallophaga, I, 1896, p. 131, pl. x, figs 3 and 5.

Recorded by Kellogg from *Phalacrocorax dilophus albociliatus*, and a straggler, probably, from *Pelecanus californicus;* both hosts from Bay of Monterey, California.

Lipeurus forficulatus NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 386.—KELLOGG, New Mallophaga, I, 1896, p. 129, pl. IX, figs. 3–6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 233.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 30.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 102.

Recorded by Kellogg from *Pelecanus californicus* (Bay of Monterey, California, and Baja California) and from *Pelecanus erythrorhynchus* (Lawrence, Kansas); by Osborn from "pelican" (*P. erythrorhynchus?*) (Ames, Iowa).

Recorded by European authors from *P. onocrotalus.*

Lipeurus bifasciatus PIAGET, Les Pédiculines, 1880, p. 342, pl. XXVIII, fig. 1.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 233.

Recorded by Osborn from *Pelecanus erythrorhynchus* (Davenport, Nebraska).

Recorded by Piaget from *P. crispus.*

Lipeurus gracilicornis PIAGET, Les Pédiculines, 1880, p. 309, pl. XXV, fig. 6.—KELLOGG (var. *major* K.), Mallophaga from Birds of Panama, Baja California, and Alaska, in new Mallophaga, III, 1899, p 30, pl. III, fig. 3.

Variety *major* Kellogg from *Fregata aquila.* The species recorded by Piaget from *Fregata minor.*

Lipeurus temporalis NITZSCH, Germar's Mag. Ent., 1818, III, p. 292.—KELLOGG, New Mallophaga, I, 1896, p. 130, pl. x, fig. 1.

Recorded by Kellogg from *Merganser serrator* (Bay of Monterey, California).

Recorded by European authors from *Mergus merganser* and *M. serrator.*

Lipeurus squalidus NITZSCH, Germar's Mag. Ent., 1818, III, p. 292.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198.—OSBORN. The Pediculi and Mallophaga Affecting Man and the Lower Animals, 1891, p. 39, fig. 27.—KELLOGG, New Mallophaga, I, 1896, p. 132, pl. x, figs. 6, 7.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 233.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 102.

Recorded by Osborn from *Anas boschas* (locality?), *Merganser serrator* (Cassino collection), *Eniconetta stelleri* (Stejneger collec-

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tion); by Kellogg from *Anas boschas*, *Charitonetta albeola*, *Erismatura rubida* (all Lawrence, Kansas); by Kellogg and Chapman from *Spatula clypeata* (Palo Alto, California).

Recorded by European authors from numerous species of *Anas*, *Fuligula*, *Oidemia*, and (varieties) from *Cygnus*.

Lipeurus constrictus KELLOGG, New Mallophaga, I, 1896, p. 125, pl. VIII, figs. 7, 8.

From *Oidemia perspicillata* (Bay of Monterey, California, and Lawrence, Kansas) and *O. deglandi* (Bay of Monterey, California).

Lipeurus jejunus NITZSCH, Germar's Mag. Ent., 1818, III, p. 292.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

Recorded by Osborn from *Anser albifrons gambeli* (Cook collection).

Recorded by European authors from several species of *Anser*.

Lipeurus leucopygus NITSCH, Burmeister, Handb. d. Ent., 1839, II, p. 434.—Var. *fasciata* PIAGET, Les Pédiculines, 1880, p. 320.—Var. *fasciatus* PIAGET, OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

Variety *fasciata* PIAGET, recorded by Osborn from *Botaurus* sp. (Burnett collection). This variety recorded by Piaget from *Ardea stellaris*.

Lipeurus botauri OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

From *Botaurus lentiginosus* (locality?).

Lipeurus luridus NITZSCH, Germar's Mag. Ent., 1818, III, p. 292.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 232.

Recorded by Osborn from *Fulica americana* (locality?).

Lipeurus longipilus KELLOGG, New Mallophaga, I, 1896, p. 119, pl. VII, fig. 7.

From *Fulica americana* (Pacific Grove, California).

Lipeurus picturatus KELLOGG, New Mallophaga, I, 1896, p. 121, pl. VIII, figs. 1, 2.

From *Fulica americana* (Lawrence, Kansas).

Lipeurus infuscatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 234, pl. II, figs. *e*, *f*.

From *Philohela minor* and *Bartramia longicauda* (Burnett collection).

Lipeurus dissimilis PIAGET, Les Pédiculines, 1880, p. 359, pl. XXIX, fig. 1.—KELLOGG, New Mallophaga, II, 1896, p. 507, pl. LXVIII, fig. 7.

Recorded by Kellogg from *Colinus virginianus* (Lawrence, Kansas).

Recorded by Piaget from same host (Zoological Garden of Rotterdam).

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Lipeurus docophoroides PIAGET, Les Pédiculines, 1880, p. 357, pl. XXVIII, fig. 9.—KELLOGG, New Mallophaga, II, 1896, p. 508, pl. LXVIII, fig. 8.—Var. *californicus* KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 103.

Recorded by Kellogg from *Callipepla californica* (Mountain View, California).

Recorded by Piaget from same host species (Zoological Garden of Rotterdam). Variety *californicus* Kellogg and Chapman from *Oreortyx pictus plumifrons* (El Dorado County, California).

Lipeurus perplexus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 103, pl. VII, fig. 5.

From *Dendragapus obscurus fuliginosus* (Kings River Canyon, California) and *Pediocœtes phasianellus columbianus* (Pullman, Washington).

Lipeurus protervus KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 31, pl. III, fig. 4.

From *Lagopus lagopus* (Kadiak Island, Alaska).

Lipeurus polytrapezius NITZSCH, Germar's Mag. Ent., 1818, III, p. 293.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

Recorded by Osborn from *Meleagris gallopavo*.

Recorded by European authors from the same host.

Lipeurus introductus KELLOGG, New Mallophaga, II, 1896, p. 500, pl. LXVIII, figs. 1, 5.

From *Phasianus nycthemerus* (bird store, San Francisco, California).

Lipeurus variabilis NITZSCH, Osborn, Insects Affecting Domestic Animals, 1896, p. 234.

"A common species on domestic fowls" (Osborn).

Lipeurus heterographus NITZSCH, Osborn, Insects Affecting Domestic Animals, 1896, p. 231.

Goniocotes burnetti PACKARD, Amer. Nat., 1870, IV, p. 94, fig. 116.

Recorded by Packard from "common barnyard fowl;" by Osborn from "domestic fowl" (Burnett collection, and Ames, Iowa); also from "young duck" (Lincoln, Nebraska (?)).

Lipeurus baculus NITZSCH, Germar's Mag. Ent., 1818, III, p. 293.—OSBORN, Notes on Mallophaga and Pendiculidæ, Canad. Ent., 1884, XVI, p. 198.—KELLOGG, New Mallophaga, II, 1896, p. 506, pl. LXVIII, figs. 4, 6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 232.

Recorded by Osborn from domestic pigeons (several collections); by Kellogg from same host (*Columba livia*), (Lawrence, Kansas).

[**Lipeurus pustulatus?** OSBORN, Insects Affecting Domestic Animals, 1896, p. 234.

From *Haliætus leucocephalus* (Burnett collection). I can find no

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description of this species and no other reference to it. Osborn's brief reference does not give the name of the describer, nor any reference to any previous record of the species; on the other hand, he does not give a description of the form. Can it be that Osborn has meant to refer to *quadri-pustulatus* Nitzsch recorded by European authors from *Aquila chrysætos* and *A. albicilla?*]

Lipeurus macgregori KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 33, pl. III, figs. 5, 6.

From *Crotophaga sulcirostris* (Panama).

Lipeurus macrocephalus KELLOGG, New Mallophaga, II, 1896, p. 504, pl. LXVIII, fig. 3.

From *Chordeiles virginianus henryi* (Palo Alto, California).

Lipeurus snodgrassi KELLOGG, New Mallophaga, II, 1896, p. 502, pl. LXVIII, fig. 2.

From *Trochilus rufus* (Palo Alto, California).

Lipeurus corvi PACKARD, Amer. Nat., 1870, IV, p. 95, pl. I, fig. 2.

From the crow (*Corvus americanus?*) (locality?).

Lipeurus gracilis PACKARD, Amer. Nat., 1870, IV, p. 95, pl. I, fig. 6.

No host; no locality.

Lipeurus elongatus PACKARD, Amer. Nat., 1870, IV, p. 95, pl. I, figs. 4, 4*a*.

No host; no locality.

Genus GIEBELIA Kellogg.

Giebelia KELLOGG, New Mallophaga, I, 1896, p. 137.

Giebelia mirabilis KELLOGG, New Mallophaga, I, 1896, p. 138, pl. XI, figs. 7, 8.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 105.

Recorded by Kellogg from *Puffinus gavia* (Bay of Monterey); by Kellogg and Chapman from *Puffinus griseus*, *P. creatopus*, *P. tenuirostris*, *P. bulleri*, and probably a straggler, from *Diomedea albatrus* (all from Bay of Monterey, California).

Genus EURYMETOPUS Taschenberg.

Eurymetopus TASCHENBERG, Die Mallophagen, 1882, p. 182.

Eurymetopus brevis DUFOUR, Ann. Soc. Ent. France, 1835, IV, p. 674, pl. XXXI, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 233.

Lipeurus taurus NITZSCH, OSBORN, Proc. U. S. Nat. Mus., 1889, p. 188.

Eurymetopus taurus NITZSCH, KELLOGG, New Mallophaga, I, 1896, p. 135, pl. XI, figs. 3-6.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 35.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 109.

Recorded by Osborn from *Diomedea exulans* (*Albatross* expedi-

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tion); by Kellogg from *Diomedea albatrus* (Bay of Monterey, California), *Diomedea nigripes* (North Pacific Ocean, off Alaska), and, as a straggler, probably, from *Fulmarus glacialis glupischa* and *F. g. rodgersii* (Bay of Monterey, California); recorded by Kellogg and Chapman, as a straggler, probably, from *Puffinus gavia* (Bay of Monterey, California).

Recorded by European authors from *Diomedea exulans*, *D. nigripes*, and *D. brachyura*.

Genus ORNITHOBIUS Denny.

Ornithobius DENNY, Monograph. Anoplur. Brit., 1842, p. 183.

Ornithobius goniopleurus DENNY, Monograph. Anoplur. Brit., 1842, p. 184, pl. XXIII, fig. 2.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 236.

Recorded by Osborn from *Branta canadensis* (Burnett collection).

Recorded by Denny from *Cygnus canadensis* and from *Mergus merganser* (Great Britain).

Ornithobius cygni LINNÆUS (Pediculus), Syst. Nat., 1759, II, p. 1018.—OSBORN, The Pediculi and Mallophaga Affecting Man and the Lower Animals, 1891, p. 42, fig. 30; Insects Affecting Domestic Animals, 1896, p. 236.

Ornithobius bucephalus GIEBEL, OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198.

Recorded by Osborn from *Olor buccinator* (Ames, Iowa).

Recorded by European authors from *Cygnus musicus* and *C. olor*.

Genus ONCOPHORUS Rudow.

Oncophorus RUDOW, Zeitschr. f. ges. Naturwiss., 1870, XXXV, p. 175.

Oncophorus bisetosus PIAGET, Les Pédiculines, 1880, p. 217, pl. XVIII, fig. 4.—Var. *californicus* KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 106, pl. VII, fig. 6.

Variety *californicus* Kellogg and Chapman, from *Rallus obsoletus* and *R. virginianus* (Palo Alto, California).

Variety *porzanæ* Piaget, from *Porzana noveboracensis* (specimen from North America in Museum of Leyden).

The species is recorded by Piaget from *Rallina plumbeiventris*, *R. tricolor*, and *R. isabellina*.

Oncophorus minutus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 291 (Philopterus).—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198; Insects Affecting Domestic Animals, 1896, p. 230.

Recorded by Osborn from *Fulica americana* (Ames, Iowa).

Recorded by European authors from *Fulica atra*, *Gallinula chloropus*, *G. orientalis*, and *G. hæmatopus*.

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Oncophorus advena KELLOGG, New Mallophaga, I, 1896, p. 133, pl. XI, figs. 1, 2.

From *Fulica americana*, and *Urinator pacificus* (Bay of Monterey, California).

Oncophorus remotus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 107, pl. VII, fig. 7.

From *Scotiaptex cinerea* (Pullman, Washington).

Genus GONIOCOTES Burmeister.

Goniocotes BURMEISTER, Handb. d. Entomologie, 1839, II, p. 431.

Goniocotes creber KELLOGG, New Mallophaga, II, 1896, p. 510, pl. LXIX, fig. 3.

From *Phasianus nycthemerus* (bird store, San Francisco, California).

Goniocotes compar NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 294.—KELLOGG, New Mallophaga, II, 1896, p. 512, pl. LXIX, fig. 4.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 230.

Recorded by Kellogg from *Columba livia* (Lawrence, Kansas); by Osborn from same host (Burnett collection).

Genus GONIODES Nitzsch.

Goniodes NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 293.

Goniodes ortygis PIAGET, Les Pédiculines, 1880, p. 282, pl. XXIII, fig. 6.

From *Ortyx virginianus* (specimens from North America, in the Zoological Garden of Rotterdam).

Goniodes dispar NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 294.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 230.

Recorded by Osborn from quail (*Ortyx virginianus?*) (Cassino collection).

Recorded by European authors from *Perdix cinerea*.

Goniodes mammillatus RUDOW, Zeitschr. f. ges. Naturwiss., 1870, XXXV, p. 483.—KELLOGG, New Mallophaga, II, 1896, p. 509, pl. LXIX, fig. 2; Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 35.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 109.

Recorded by Kellogg from *Callipepla californica* (Mountain View, California), and from *Lagopus lagopus* (Kadiak Island, Alaska) by Kellogg and Chapman from *Pediocœtes phasianellus columbianus* (Pullman, Washington). Described by Rudow from *Pelecanus ruficollis* (must have been an instance of straggling) and recorded by Taschenberg from *Callipepla californica*.

Goniodes cupido GIEBEL, Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 387.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 231.

Recorded by Osborn from *Tympanuchus americanus* (C. B. Cook collection).

Recorded by European authors from *Tetrao cupido*.

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Goniodes merriamanus PACKARD, Rept. U. S. Geol. and Geog. Survey, 1872, p. 731.

From *Tetrao richardsoni* (no locality).

Goniodes stylifer NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 294.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 231.

Recorded by Osborn from *Meleagris gallopavo* (Hassall, Baltimore, Maryland).

Recorded by European authors from same host.

Goniodes cervinicornis GIEBEL, Insecta Epizoa, 1874, p. 199.—KELLOGG, New Mallophaga, II, 1896, p. 509, pl. LXIX, fig. 1.

Recorded by Kellogg from *Phasianus nycthemerus* (bird store, San Francisco, California).

Recorded by European authors from same host and *Tragopan satyrus*.

Goniodes damicornis NITZSCH (ed. Giebel), Zeitschr. f. ges. Naturwiss., 1866, XXVII, p. 119.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 231.

Recorded by Osborn from the "pigeon" (*Columba livia*) (Cassino collection).

Recorded by European authors from *Columba palumbus*.

Goniodes falcicornis NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 293.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 231.

Recorded by Osborn as "common on the pea-fowl."

Recorded by European authors from *Pavo cristatus*.

[**Goniodes mephitidis** PACKARD, Rept. U. S. Geol. and Geog. Survey, 1872, p. 732.

Taken from a skunk, *Mephitis*, but probably a straggler from some gallinaceous bird which was the prey of the animal.]

Family TRICHODECTIDÆ Burmeister.

Genus TRICHODECTES Nitzsch.

Trichodectes NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 294.

Trichodectes scalaris NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 296.—OSBORN, The Pediculi and Mallophaga Affecting Man and the Lower Animals, Bull. 7, Div. of Ent., U. S. Dept. Ag., 1891, p. 47, fig. 36; Insects Affecting Domestic Animals, 1896, p. 238.

From domestic cattle.

Trichodectes parumpilosus PIAGET, Les Pédiculines, 1880, p. 397, pl. XXXII, fig. 5.—OSBORN, The Pediculi and Mallophaga, 1891, p. 46, fig. 35; Insects Affecting Domestic Animals, 1896, p. 238.

From the horse (Ames, Iowa).

Trichodectes climax NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 296.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 237.

From the domestic goat (Hassall collection, Baltimore).

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Trichodectes sphærocephalus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 296.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 237.
From domestic sheep (Canada and Iowa).

Trichodectes limbatus GERVAIS, Aptères, III, 1844, p. 313, pl. VII, fig. 1.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 237.
From domestic goat (Hassall collection, Baltimore).

Trichodectes subrostratus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 296.—OSBORN, The Pediculi and Mallophaga, 1891, p. 42, fig. 31; Insects Affecting Domestic Animals, 1896, p. 237.
From domestic cat ("Fitch and other American collections").

Trichodectes retusus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 296.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 98; Insects Affecting Domestic Animals, 1896, p. 237.
From *Putorius ermineus* (locality?) and the weasel (Ames, Iowa.)

Trichodectes setosus GIEBEL, Zeitschr. f. ges. Naturwiss., 1861, XVII, p. 86.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 239, fig. 145.
From the porcupine *Erethizon dorsatum* (Nebraska).

Trichodectes crassus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 295.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 237.
From *Procyon lotor* (Burnett collection).

Trichodectes geomydis OSBORN, The Pediculi and Mallophaga, 1891, p. 54, fig. 42; Insects Affecting Domestic Animals, 1896, p. 239, fig. 146.
From *Geomys bursarius* (Ames, Iowa) and *Thomomys bottæ* (California).

Trichodectes parallelus OSBORN, Insects Affecting Domestic Animals, 1896, p. 240, fig. 148.
From the "deer" (species?) (Cornell collection).

Trichodectes tibialis OSBORN, Insects Affecting Domestic Animals, 1896, p. 240, fig. 147.
From black-tailed deer (Baker collection).

Trichodectes castoris OSBORN, Insects Affecting Domestic Animals, 1896, p. 241, fig. 149.
From the beaver (locality?).

Trichodectes mephitidis OSBORN, Insects Affecting Domestic Animals, 1896, p. 242, fig. 150.
From polecat, *Spilogale interrupta* (Tama County, Iowa), and from *Mephitis mephitica* (Nebraska and California).

Trichodectes quadraticeps CHAPMAN, Entomological News, 1897, VIII, p. 185, pl. IX.
From the fox, *Urocyon virginianus* (Palo Alto, California).

Trichodectes californicus CHAPMAN, Entomological News, 1897, VIII, p. 186, pl. IX.
From the pocket mouse, *Perognathus* sp. (Baja California).

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Suborder AMBLYCERA Kellogg.

Family LIOTHEIDÆ Burmeister.

Genus LÆMOBOTHRIUM Nitzsch.

Læmobothrium NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 301.

Læmobothrium similis KELLOGG, New Mallophaga I, 1896, p. 153, pl. XIV, figs. 1, 2.

From *Colymbus nigricollis californicus* (Lawrence, Kansas).

Læmobothrium atrum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 302.—KELLOGG, New Mallophaga I, 1896, p. 155, pl. XIV, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 247.

Recorded by Kellogg from *Fulica americana* (Bay of Monterey, California); by Osborn from unknown host.

Recorded by European authors from *Fulica atra* and *Podiceps rubricollis*.

Læmobothrium hasticeps NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 302.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 247.

Osborn's specimens (by typographical error referred to as *hastipes*) were sent him by Dr. C. Hart Merriam; host and locality unindicated by Osborn.

Recorded by European authors from *Falco tinnunculus*.

Læmobothrium giganteum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 301.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 247.

Recorded by Osborn from *Thrysætos harpyia* (Beutenmüller).

Recorded by European authors from *Buteo vulgaris*.

Genus PHYSOSTOMUM Nitzsch.

Physostomum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 302.

Physostomum invadens KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga III, 1899, p. 50.

From *Melanerpes wagleri* and *Chiroxiphia lanceolata* (Panama).

Physostomum lineatum OSBORN, Insects Affecting Domestic Animals, 1896, p. 248.

From *Trochilus colubris* (Cornell University collection).

Physostomum prominens KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 137, pl. IX, fig. 5.

From *Colypte costæ* (Ontario, California).

Physostomum angulatum KELLOGG, New Mallophaga, II, 1896, p. 515, pl. LXX, fig. 5.

From *Tyrannus tyrannus* (Lawrence, Kansas).

Physostomum sucinaceum KELLOGG, New Mallophaga II, 1896, p. 514, pl. LXX, fig. 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 137.

From *Empidonax difficilis* (Palo Alto, California).

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Physostomum diffusum KELLOGG, New Mallophaga, II, 1896, p. 518, pl. LXX, fig. 3; var. *pallidum* KELLOGG, Idem, p. 519.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga III, 1899, p. 137.

Recorded by Kellogg from *Zonotrichia coronata* and *Passerculus sandvicensis* (Palo Alto, California); by Kellogg and Chapman from *Junco hyemalis oregonus* (Pullman, Washington). Variety *pallidum* Kellogg, from *Junco* sp. (Lawrence, Kansas).

Physostomum microcephalum KELLOGG, New Mallophaga, II, 1896, p. 513, pl. LXX, fig. 1.

From *Carpodacus mexicanus frontalis* (Palo Alto, California).

Physostomum australe KELLOGG, New Mallophaga, II, 1896, p. 516, pl. LXX, fig. 4.

From *Passerina versicolor* (Cameron County, Texas).

Physostomum pallens KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 49, pl. IV, fig. 7.

From *Protonotaria citrea* and *Elainea subpagana* (Panama).

Physostomum frenatum NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 442.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 248.

Recorded by Osborn from "golden-crowned Kinglet" (*Regulus satrapa*) (Laurent collection). "Very similar forms from *Passerella iliaca* (Cassino collection), and *Pipilo erythrophthalmus*, from Dr. Merriam" (Osborn).

Recorded by Nitzsch from *Regulus verus*.

Genus TRINOTON Nitzsch.

Trinoton NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 300.

Trinoton luridum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 300.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 199.—KELLOGG, New Mallophaga, I, 1896, p. 152, pl. XIII, fig. 4.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 248.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 35.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 116.

Recorded by Osborn from *Anas boschas;* "have met with it a number of times myself, and have noted it in collections of the U. S. National Museum, the Cassino collection, from *Mergus serrator*, Bruner collection, Kellogg collection, etc." (Osborn).

Recorded by Kellogg from *Spatula clypeata*, *Merganser serrator*, *Anas carolinensis*, *Dafila acuta*, *Anas boscas*, and *Anas americana* (Lawrence, Kansas); from *Erismatura rubida* (Monterey, California), and from *Anas carolinensis* (Kadiak Island, Alaska).

Recorded by Kellogg and Chapman from *Anas americana* and *Aythya marila nearctica* (Palo Alto, California), and from *Spatula clypeata* (Mountain View, California).

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Recorded by European authors from numerous species of *Anas* and from other ducks; and also from *Branta rufina* and *Egretta alba.*

Trinoton lituratum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 300.—KELLOGG, New Mallophaga, I, 1896, p. 151, pl. XIII, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 248.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 116.

Recorded by Kellogg from *Dafila acuta* and *Merganser serrator* (Lawrence, Kansas); by Osborn from "blue-winged teal" (Cassino collection); by Kellogg and Chapman from *Spatula clypeata* (Mountain View, California).

Recorded by European authors from *Mergus albellus, Anas clypeata, Dendrocygna arborea,* and *Anser albifrons.*

Trinoton minor OSBORN, Insects Affecting Domestic Animals, 1896, p. 248.

From *Oidemia* sp. (Burnett collection).

Genus ANCISTRONA Westwood.

Ancistrona WESTWOOD, Thesaurus Entomologicus Oxoniensis, 1874, p. 197.

Ancistrona gigas PIAGET, Les Pédiculines, Supplement, 1885, p. 117, pl. XII, fig. 8.—KELLOGG, New Mallophaga, I, 1896, p. 150, pl. XIII, figs. 1, 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 116.

Recorded by Kellogg from *Fulmarus glacialis glupischa* and *F. g. rodgersii,* and by Kellogg and Chapman from *Puffinus gavia,* and *P. griseus* (all hosts from Bay of Monterey, California).

Recorded by Piaget from *Procellaria glacialis.*

Genus NITZSCHIA Denny.

Nitzschia DENNY, Monograph. Anoplur. Brit., 1842, p. 230.

Nitzschia pulicaris NITZSCH, Zeitschr. f. ges. Naturwiss., 1861, XVIII, p. 304.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 199; Insects Affecting Domestic Animals, 1896, p. 247.

Recorded by Osborn from *Chætura pelasgica* (Ames, Iowa).

Recorded by European authors from *Cypselus apus.*

Nitzschia dubius KELLOGG, New Mallophaga, II, 1896, p. 540, pl. LXXIII, fig. 6.

From *Chætura pelasgica* (Lawrence, Kansas).

Genus COLPOCEPHALUM Nitzsch.

Colpocephalum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 298.

Colpocephalum perplanus KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 109, pl. VII, fig. 8.

From *Lunda cirrhata* (Bay of Monterey, California).

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Colpocephalum funebre KELLOGG, New Mallophaga, I, 1896, p. 147, pl. XII, fig. 7.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1897, p. 111.

Recorded by Kellogg from *Larus glaucescens* (Bay of Monterey, California); by Kellogg and Chapman from *L. heermanni* (Bay of Monterey, California).

Colpocephalum lari PACKARD, American Naturalist, 1870, IV, p. 96, pl. I, fig. 1.

From *Larus marinus* (locality?).

Colpocephalum abbotti KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 36, pl. IV, fig. 9.

From *Larus* sp. (Baja California).

Colpocephalum fuscipes PIAGET, Les Pédiculines, 1880, p. 567, pl. XLVII, fig. 7.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from *Larus* sp. (Cassino collection).

Recorded by Piaget from *Larus dominicanus*.

Colpocephalum pingue KELLOGG, New Mallophaga, I, 1896, p. 144, pl. XII, fig. 5.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 111.

From *Diomedea albatrus* (Bay of Monterey, California).

Colpocephalum unciferum KELLOGG, New Mallophaga, I, 1896, p. 140, pl. XII, figs. 1–3.

From *Pelecanus erythrorhynchus* (Lawrence, Kansas) and *P. californicus* (Bay of Monterey, California).

Colpocephalum spineum KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 38, pl. IV, fig. 1.

From *Fregata aquila* (Panama).

Colpocephalum laticeps KELLOGG, New Mallophaga, I, 1896, p. 149, pl. XII, fig. 8.

From *Ardea egretta* (Lawrence, Kansas).

Colpocephalum assimile PIAGET, Les Pédiculines, 1880, p. 544.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from Ames, Iowa (Osborn collection), host not specifically given, but by implication *Grus americana;* also from "whooping crane" (*Grus americana*) (Lamar, Colorado).

Recorded by Piaget from *Grus americana* (Zoological Garden of Rotterdam).

Colpocephalum uniforme KELLOGG, New Mallophaga, I, 1896, p. 142, pl. XII, fig. 4.

From *Recurvirostra americana* (Lawrence, Kansas).

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Colpocephalum ochraceum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 299.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from *Tringa maculata* (Burnett collection).

Recorded by European authors from *Vanellus cristatus*, *V. varius*, *Himantopus rufipes*, *Charadrius morinellus*, *Tringa variabilis*, *Limosa rufa*, *Macrorhamphus griseus*, *Charadrius hiaticula*, *Totanus hypoleucus*, *Hæmatopus ostralegus*, and *Sterna minuta*.

Colpocephalum spinulosum PIAGET, Les Pédiculines, 1880, p. 563, pl. XLVII, fig. 3; var. *minor* KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 112, pl. VII, fig. 9.

Variety *minor* Kellogg and Chapman, from *Calidris arenaria* (Pacific Grove, California).

The species recorded by Piaget from *Limosa melanura*.

Colpocephalum timidum KELLOGG, New Mallophaga, I, 1896, p. 145, pl. XII, fig. 6.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 112.

Recorded by Kellogg from *Charadrius dominicus* (Lawrence, Kansas); by Kellogg and Chapman from *C. squatarola* (Pacific Grove, California).

Colpocephalum longicaudum PIAGET, Les Pédiculines, 1880, p. 534, pl. XLIV, fig. 6.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from "carrier pigeon" (Burnett collection). "Also a specimen very similar on *Gallus gallus* (Burnett collection)" (Osborn).

Recorded by Piaget from *Columba domestica* and "probablement comme deserteur" from *Phasianus reevesii*.

Colpocephalum flavescens NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 298.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198.—KELLOGG, New Mallophaga, II, 1896, p. 525, pl. LXXI, fig. 4.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 113.

Recorded by Osborn from *Elanoides forficatus* (Ames, Iowa); by Kellogg from *Archibuteo lagopus sancti-johannis* and *Haliætus leucocephalus* (Lawrence, Kansas); by Kellogg and Chapman from *Aquila chrysætos* (Palo Alto, California), and *Haliætus pelagicus* (brought to California from Arctic Ocean).

Recorded by European authors from *Haliætus albicilla*, *H. leucogaster*, *Aquila nævia Gypætos barbatus*, *Harpyia destructor*, *Milvus regalis*, *Astur palumbarius*, *Falco peregrinus*, *Pernis apivorus*, *Buteo vulgaris*, *Circus cinereus*, and *Nyctea nivea*.

Colpocephalum osborni KELLOGG, New Mallophaga, II, 1896, p. 521, pl. LXXI, figs. 2 and 3.

From *Elanus leucurus* (Palo Alto, California).

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Colpocephalum maculatum PIAGET, Les Pédiculines, 1880, p. 516, pl. XLIII, fig. 1.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 40, pl. IV, fig. 2.

Recorded by Kellogg from *Polyborus cheriway* (Baja California).

Recorded by Piaget from *Polyborus brasiliensis* (Zoological Garden of Rotterdam).

Colpocephalum subpachygaster PIAGET, Les Pédiculines, 1880, p. 517, pl. XLIII, fig. 2.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from *Bubo virginianus* (Burnett collection).

Recorded by Piaget from *Strix noctua*, *S. flammea*, and *S. passerina*.

Colpocephalum pustolusum PIAGET, Les Pédiculines, 1880, p. 559, pl. XLVI, fig. 8.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 246.

Recorded by Osborn from *Ceryle alcyon* (Burnett collection).

Recorded by Piaget from *Machetes pugnax*.

Colpocephalum subæquale NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 299.—KELLOGG, New Mallophaga, II, 1896, p. 525, pl. LXXII, fig. 1; Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 40.

Recorded by Kellogg from *Corvus americanus* (Palo Alto, California) and *Corvus corax sinuatus* (Baja California).

Recorded by European authors from *Corvus corax*, *C. frugilegus*, and *C. corone*.

Colpocephalum chrysophæum KELLOGG, New Mallophaga, II, 1896, p. 520, pl. LXXI, fig. 1.

From *Melospiza fasciata samuelis* (Palo Alto, California).

Colpocephalum grandiculum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 113, pl. VII, fig. 10.

From *Pipilo fuscus crissalis* (Palo Alto, California).

Colpocephalum diffusum KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 40, pl. IV, figs. 3, 4.

Recorded by Kellogg from *Amblycercus holosericeus*, *Arremonops striaticeps*, *Saltator albicollis*, *Phœnicothraupis fuscicauda*, *Elainea subpagana*, *Dendroica vieilloti*, *Piaya cayana thermophila*, *Chiroxiphia lanceolata*, and *Butorides virescens*.

Colpocephalum fumidum KELLOGG, New Mallophaga, II, 1896, p. 523, pl. LXXI, fig. 5.

From *Psaltriparus minimus* (Palo Alto, California).

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Genus MENOPON Nitzsch.

Menopon NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 299.

Menopon tridens NITZSCH, Burmeister, Handb. d. Ent., 1839, II, p. 440.—KELLOGG, New Mallophaga, I, 1896 (varieties *pacificum* Kellogg, *insolens* Kellogg, and *par* Kellogg), p. 165, pl. XV, figs. 3, 4.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 244.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 116.

Recorded by Kellogg, variety *pacificum* Kellogg, from *Urinator pacificus* and *Fulica americana* (Monterey, California); variety *insolens* Kellogg from *Colymbus nigricollis californicus* (Bay of Monterey, California); and *Sterna forsteri* (Lawrence, Kansas), variety *par* Kellogg, from *Æchmophorus occidentalis* (Lawrence, Kansas).

Recorded by Osborn from *Fulica americana* (Ames, Iowa). Recorded by Kellogg and Chapman from *Rallus obsoletus* and *R. virginianus* (Palo Alto, California).

Menopon infrequens KELLOGG, New Mallophaga, I, 1896, p. 161, pl. XV, fig. 5.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 117.

Recorded by Kellogg from *Larus glaucescens* (Bay of Monterey, California), by Kellogg and Chapman from *L. delawarensis* (same locality).

Menopon navigans KELLOGG, New Mallophaga, I, 1896, p. 156, pl. XIV, figs. 4, 5.

From *Diomedea albatrus* (Bay of Monterey, California).

Menopon irrumpens KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 117, pl. VIII, fig. 1.

From *Diomedea albatrus* (Bay of Monterey, California).

Menopon numerosum KELLOGG, New Mallophaga, I, 1896, p. 159, pl. XV, fig. 1.

From *Fulmarus glacialis glupischa* and *F. g. rodgersii* (Bay of Monterey, California).

Menopon parvulum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 119, pl. VIII, fig. 2.

From *Puffinus gavia*, *P. griseus*, and *P. creatopus* (Bay of Monterey, California).

Menopon petulans KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 121, pl. VIII, fig. 3.

From *Puffinus gavia* and *P. griseus* (Bay of Monterey, California).

Menopon titan PIAGET, Les Pédiculines, 1880, p. 503, pl. XL, fig. 7.—KELLOGG, New Mallophaga, I, 1896 (varieties *impar* Kellogg and *linearis* Kellogg) p. 163, pl. XV, fig. 2.—KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899 (variety *linearis* Kellogg) p. 43.—KELLOGG and CHAP-

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MAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899 (varieties *linearis* Kellogg and *incompositum* Kellogg and Chapman), p. 123.

Recorded by Kellogg, variety *impar* Kellogg from *Pelecanus erythrorhynchus* (Lawrence, Kansas); variety *linearis* Kellogg from *Pelecanus californicus* (Bay of Monterey, California, and Baja California); by Kellogg and Chapman, variety *incompositum* Kellogg and Chapman from *Phalacrocorax penicillatus* (Bay of Monterey, California).

Menopon consanguineum PIAGET, Les Pédiculines, Supplement, 1885, p. 116, pl. XII, fig. 7.—RILEY and HOWARD, Insect Life, 1893, V, p. 284.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 243.

Recorded by Riley and Howard from "white pelican" (Riverdale, California); by Osborn from "pelican" (*Pelecanus erythrorhynchus*) (Ames, Iowa), and on "specimens examined in collections of United States National Museum, Kansas University, Boston Society of Natural History, etc."

Menopon aurifasciatum KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 43, pl. IV, fig. 5.

From *Fregata aquila* (Panama).

Menopon loomisii KELLOGG, New Mallophaga, I, 1896, p. 162, pl. XV, fig. 6.

From *Oidemia deglandi* (Bay of Monterey, California).

Menopon indistinctum KELLOGG, New Mallophaga, I, 1896, p. 157, pl. XIV, figs. 6, 7.

From *Recurvirostra americana* (Lawrence, Kansas).

Menopon crocatum NITZSCH, ed. Giebel, Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 392.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 244.

Recorded by Osborn from *Philohela minor* and *Limosa hæmastica* (Burnett collection).

Recorded by Nitzsch from *Numenius arquata*.

Menopon pallescens NITZSCH, ed. Giebel, Zeitschr. f. ges. Naturwiss., 1866, XXVIII, p. 391.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 243.

Recorded by Osborn from *Colinus virginianus* (Burnett collection).

Recorded by European authors from *Perdix cinerea*.

Menopon striatum KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 44, pl. IV, fig. 6.

From *Lagopus lagopus* (Kadiak Island, Alaska).

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Menopon monostœchum KELLOGG, New Mallophaga, II, 1896, p. 530, pl. LXXII, fig. 4.

From *Phasianus nycthemerus* (bird store, San Francisco, California).

Menopon pallidum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 299.—OSBORN, Notes on Mallophaga and Pediculidæ, Canad. Ent., 1884, XVI, p. 198; Insects Affecting Domestic Animals, 1896, p. 243.

Recorded by Osborn from the domestic fowl.

Recorded by European authors from the domestic fowl, pigeons, and ducks.

Menopon biseriatim PIAGET, Les Pédiculines, 1880, p. 469, pl. XXXVII, fig. 2.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 243.

Recorded by Osborn from domestic fowl (Baltimore; Cornell University collection).

Recorded by Piaget from domestic fowl, *Euplocamus cuvieri*, *Phasianus colchicus*, *Pavo speciferus*, and *Meleagris gallopavo*.

Menopon longicephalum KELLOGG, New Mallophaga, II, 1896, p. 535, pl. LXXIII, fig. 4.

From the pigeon, *Columba livia* (Lawrence, Kansas).

Menopon decoratum KELLOGG, New Mallophaga, II, 1896, p. 526, pl. LXXII, fig. 2.

From *Elanus leucurus* (Palo Alto, California).

Menopon fulvo-fasciatum PIAGET, Les Pédiculines, 1880, p. 417, pl. XXXIII, fig. 3.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 244.

Recorded by Osborn from *Milvus* sp. incog. (Burnett collection).

Recorded by Piaget from *Buteo vulgaris*, and a variety, *minor*, from *Accipiter nisus*.

Menopon funereum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 124, pl. VIII, fig. 6.

From *Dryobates pubescens gairdneri* and *Coccothraustes vespertinus montanus* (California).

Menopon præcursor KELLOGG, Mallophaga from Birds of Panama, Baja California, and Alaska, in New Mallophaga, III, 1899, p. 46, pl. IV, fig. 8.

From *Melanerpes uropygialis* (Baja California).

Menopon distinctum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 126, pl. VIII, fig. 7.

From *Myiarchus cinerascens* and *Heleodytes brunneicapillus* (Ontario, California).

Menopon persignatum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 128, pl. IX, fig. 1.

From *Aphelocoma californica* (Mountain View, California).

Menopon interruptus OSBORN, Insects Affecting Domestic Animals, 1896, p. 245, pl. II, fig. *h*.

From *Corvus americanus* (Ames, Iowa; also Burnett collection).

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Menopon mesoleucum NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 300.—KELLOGG, var. *americanum* Kellogg, New Mallophaga, II, 1896, p. 539, pl. LXXIII, fig. 3.

Variety *americanum* Kellogg from *Corvus americanus* (Lawrence, Kansas, and Palo Alto, California).

The species recorded by European authors from *Corvus cornix* and *C. corone.*

Menopon expansum OSBORN, Insects Affecting Domestic Animals, 1896, p. 245, pl. II, fig. *j*.

From *Dolichonyx oryzivorus* (Burnett collection).

Menopon crassipes PIAGET, Les Pédiculines, 1880, p. 450, pl. XXXV, fig. 7.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 244.

Recorded by Osborn from *Icterus galbula* (Burnett collection).

Recorded by Piaget from *Epimachus magnificus.*

Menopon carduelis DENNY, Monograph. Anoplur. Brit., 1842, p. 2 8, pl. XX, fig. 7.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 244.

Recorded by Osborn from *Spinus tristis* (Burnett collection).

Recorded by Denny from *Fringilla carduelis.*

Menopon mœstum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 130, pl. IX, fig. 2.

From *Zonotrichia coronata* and *Melospiza fasciata samuelis* (Palo Alto, California).

Menopon melanorum KELLOGG, New Mallophaga, II, 1896, p. 532, pl. LXXIII, fig. 1.

From *Pipilo erythrophthalmus* (Lawrence, Kansas).

Menopon dissimile KELLOGG, New Mallophaga, II, 1896, p. 536, pl. LXXIII, fig. 5.

From *Progne subis* (Lawrence, Kansas).

Menopon rusticum GIEBEL, Insecta Epizoa, 1874, p. 288.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 243.

Recorded by Osborn from *Progne subis* (Ames, Iowa).

Recorded by Giebel from *Hirundo rustica.*

Menopon malleus NITZSCH, Germar's Mag. d. Ent., 1818 (Eureum), III, p. 301.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 133, pl. IX, fig. 3.

Recorded by Kellogg and Chapman from *Petrochelidon lunifrons* (Ontario, California).

Recorded by European authors from *Hirundo rustica.*

Menopon ridulosum KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 135, pl. IX, fig. 4.

From *Dendroica æstiva* (Palo Alto, California).

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Menopon robustum KELLOGG, New Mallophaga, II, 1896, p. 528, pl. LXXII, fig. 3.

From *Psaltriparus minimus* (Palo Alto, California).

Menopon incertum KELLOGG, New Mallophaga, II, 1896, p. 533, pl. LXXIII, fig. 2.—KELLOGG and CHAPMAN, Mallophaga from Birds of California, in New Mallophaga, III, 1899, p. 130.

Recorded by Kellogg from *Turdus ustulatus* and *Spinus tristis* (Palo Alto, California); by Kellogg and Chapman from *Chondestes grammacus strigatus* (Ontario, California), and *Thryothorus bewicki spilurus* (Palo Alto, California).

Menopon fusco-marginatus OSBORN, Insects Affecting Domestic Animals, 1896, p. 245.

From *Turdus minor* (Burnett collection).

Genus GYROPUS Nitzsch.

Gyropus NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 302.

Gyropus ovalis NITZSCH, Germars Mag. f. Ent., 1818, III, p. 304.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 216, and p. 249, fig. 140.

Recorded by Osborn from guinea pig (*Cavia sobaya*) (Baltimore).

Recorded by European authors from same host, which is its only one.

Gyropus gracilis NITZSCH, Germar's Mag. d. Ent., 1818, III, p. 304.—OSBORN, Insects Affecting Domestic Animals, 1896, p. 215, and p. 249, fig. 139.

Recorded by Osborn from guinea pig (*Cavia sobaya*) (Baltimore).

Reported by European authors from same host, which is its only one.

SUMMARY.

So far 282 species of Mallophaga have been recorded from North American hosts, of which 264 species are from birds and 18 from mammals. These species of Mallophaga represent 18 out of the 21 recognized genera. All of these genera except one (*Giebelia*) were established for specimens taken from European hosts. Of the 264 species of Mallophaga from North American birds, 107 are species originally described from European hosts (in 11 cases the American specimens being called varieties). The remaining 157 species were described from American hosts.

LIST OF HOSTS, WITH PARASITES.

BIRDS.

The sequence and nomenclature of hosts is, where possible, that of the American Ornithologists' Union Check-list of North American Birds, second edition, 1895; where the hosts have been recorded under names not recognized by the Check-list I have, where the synonymy

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could certainly be made out, used the Check-list name. In cases of doubtful records or references to vernacular names only of host, I have indicated the doubt by a preceding point of interrogation and have given exact reference to the record in following parentheses:

Æchmophorus occidentalis.
Menopon tridens Nitzsch, var. *par* Kellogg.

Colymbus nigricollis californicus.
Docophorus pertusus Nitzsch.
lari Denny.
kansensis Kellogg.
Nirmus fuscomarginatus Denny, var. *americanus* Kellogg and Chapman.
Laemobothrium similis Kellogg.
Menopon tridens Nitzsch, var. *insolens* Kellogg.

Urinator pacificus.
Docophorus colymbinus Denny.
graviceps Kellogg.
Oncophorus advena Kellogg.
Menopon tridens Nitzsch, var. *pacificum* Kellogg.

Urinator lumme.
Docophorus colymbinus Denny.
lari Denny.
Lipeurus faralloni Kellogg. (Straggler?)

Lunda cirrhata.
Nirmus pacificus Kellogg and Chapman.
Colpocephalum perplanum Kellogg and Chapman.

Cerorhinca monocerata.
Docophorus acutipectus Kellogg.
Nirmus maritimus Kellogg and Chapman.

Ptychoramphus aleuticus.
Docophorus insolitus Kellogg.
montereyi Kellogg.
Nirmus maritimus Kellogg and Chapman.

Simorhynchus cristatellus.
Nirmus citrinus Nitzsch.

Simorhynchus pygmæus.
Nirmus citrinus Nitzsch.

Simorhynchus pusillus.
Nirmus citrinus Nitzsch.

Synthliboramphus antiquus.
Docophorus atricolor Kellogg.
montereyi Kellogg.
Nirmus citrinus Nitzsch.
maritimus Kellogg and Chapman.

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Brachyramphus marmoratus.
Docophorus atricolor Kellogg.
montereyi Kellogg.

Cepphus columba.
Docophorus procax Kellogg.
Nirmus fuscomarginatus Denny, var. *americanus* Kellogg and Chapman.
pacificus Kellogg and Chapman

Uria troile californica.
Docophorus calvus Kellogg.

Alle alle.
Nirmus citrinus Nitzsch.

Stercorarius pomarinus.
Docophorus melanocephalus Burmeister.
Nirmus triangulatus Nitzsch.
Lipeurus laculatus Kellogg and Chapman.

Rissa tridactyla pollicaris.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch, var. *atrimarginatus* Kellogg and Chapman.

Larus glaucus.
Docophorus lari Denny.

Larus glaucescens.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
Colpocephalum funebre Kellogg
Menopon infrequens Kellogg.

Larus marinus.
Colpocephalum lari Packard.

Larus occidentalis.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
punctatus Nitzsch.

Larus argentatus smithsonianus.
Docophorus lari Denny.
Nirmus fuscomarginatus Denny, var. *americanus* Kellogg and Chapman.
lineolatus Nitzsch.

Larus vegæ.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
lineolatus Nitzsch, var. *atrimarginatus* Kellogg and Chapman.

Larus californicus.
Nirmus lineolatus Nitzsch.

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Larus delawarensis.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
punctatus Nitzsch.
Menopon infrequens Kellogg.

Larus brachyrhynchus.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
lineolatus Nitzsch, var. *atrimarginatus* Kellogg and Chapman.

Larus canus.
Docophorus lari Denny.
Nirmus lineolatus Nitzsch.
lineolatus Nitzsch, var. *atrimarginatus* Kellogg and Chapman.

Larus heermanni.
Docophorus lari Denny.
Nirmus felix Giebel.
lineolatus Nitzsch.
Colpocephalum funebre Kellogg.

Larus philadelphia.
Docophorus lari Denny.

Larus sp.
Colpocephalum abbotti Kellogg.

Larus sp. (Osborn, Ins. Aff. Dom. An., 1896, p. 246.)
Colpocephalum fuscipes Piaget.

Sterna maxima.
Docophorus melanocephalus Burmeister.
Nirmus hebes Kellogg.
præstans Kellogg.

Sterna forsteri.
Menopon tridens Nitzsch, var. *insolens* Kellogg.

Diomedea nigripes.
Lipeurus confidens Kellogg.
densus Kellogg.
Eurymetopus brevis Dufour.

Diomedea albatrus.
Nirmus giganticola Kellogg.
Lipeurus concinnus Kellogg and Chapman.
diversus Kellogg (stragglers?).
densus Kellogg.
ferox Giebel.
Giebelia mirabilis Kellogg. (Straggler?)
Eurymetopus brevis Dufour.
Colpocephalum pingue Kellogg.
Menopon irrumpens Kellogg and Chapman.
navigans Kellogg.

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Diomedea exulans.
Eurymetopus brevis Dufour.

Diomedea brachyura.
Lipeurus ferox Giebel.

Fulmarus glacialis glupischa.
Docophorus occidentalis Kellogg.
Nirmus maritimus Kellogg and Chapman.
Lipeurus celer Kellogg.
varius Kellogg.
Eurymetopus brevis Dufour (straggler?).
Ancistrona gigas Piaget.
Menopon numerosum Kellogg.

Fulmarus glacialis rodgersi.
Docophorus occidentalis Kellogg.
Lipeurus celer Kellogg.
varius Kellogg.
Eurymetopus brevis Dufour.
Ancistrona gigas Piaget.
Menopon numerosum Kellogg.

Puffinus creatopus.
Lipeurus diversus Kellogg.
laculatus Kellogg and Chapman.
fuliginosus Taschenberg, var. *major* Kellogg and Chapman.
testaceus Taschenberg.
Giebelia mirabilis Kellogg.
Menopon paululum Kellogg and Chapman.

Puffinus gavia.
Docophorus validus Kellogg and Chapman.
Lipeurus diversus Kellogg.
fuliginosus Taschenberg, var. *major* Kellogg and Chapman.
limitatus Kellogg.
testaceus Taschenberg.
Giebelia mirabilis Kellogg and Chapman.
Eurymetopus brevis Dufour (straggler?).
Ancistrona gigas Piaget.
Menopon paululum Kellogg and Chapman.
petulans Kellogg and Chapman.

Puffinus griseus.
Nirmus pacificus Kellogg and Chapman.
giganticola Kellogg.
Lipeurus diversus Kellogg.
limitatus Kellogg.
Giebelia mirabilis Kellogg.
Ancistrona gigas Piaget.
Menopon paululum Kellogg and Chapman.
petulans Kellogg and Chapman.

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Puffinus tenuirostris.
Lipeurus diversus Kellogg.
limitatus Kellogg.
Giebelia mirabilis Kellogg.

Puffinus bulleri.
Lipeurus diversus Kellogg.
limitatus Kellogg.
Giebelia mirabilis Kellogg.

(?) **Oceanites oceanicus** ("*Thalassidroma wilsoni;*" Osborn, Ins. Aff. Dom. An., 1896, p. 235).
Lipeurus subangusticeps Piaget.

Phaëthon æthereus.
Docophorus phaëtonus Osborn.

Sula alba.
Lipeurus pullatus Nitzsch.

Sula bassana.
Lipeurus pullatus Nitzsch.

(?) **Sula** sp. (Osborn; Ins. Aff. Dom. An., 1896, p. 217.)
Docophorus bassanæ Denny.

Phalacrocorax penicillatus.
Lipeurus faralloni Kellogg.
Menopon titan Nitzsch var. *incompositum* Kellogg.

Phalacrocorax dilophus.
Lipeurus longicornis Piaget.

Phalacrocorax dilophus albociliatus.
Lipeurus faralloni Kellogg.
toxoceros Nitzsch.

Pelecanus erythrorhynchus.
Lipeurus forficulatus Nitzsch.
bifasciatus Piaget.
Colpocephalum unciferum Kellogg.
Menopon consanguineum Piaget.
titan Nitzsch var. *impar* Kellogg.

Pelecanus californicus.
Lipeurus forficulatus Nitzsch.
toxoceros Nitzsch. (Straggler?)
Colpocephalum unciferum Kellogg.
Menopon titan Nitzsch var. *linearis* Kellogg.

Fregata aquila.
Lipeurus gracilicornis Piaget, var. *major* Kellogg.
Colpocephalum spineum Kellogg.
Menopon aurifasciatum Kellogg.

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Merganser serrator.
Docophorus icterodes Nitzsch.
Lipeurus squalidus Nitzsch.
temporalis Nitzsch.
Trinoton lituratum Nitzsch.
luridum Nitzsch.

Anas boschas.
Docophorus icterodes Nitzsch.
Lipeurus squalidus Nitzsch.
Trinoton luridum Nitzsch.

Anas americana.
Trinoton luridum Nitzsch.

Anas carolinensis.
Docophorus icterodes Nitzsch.
Trinoton luridum Nitzsch.

Anas discors.
Trinoton lituratum Nitzsch.

Spatula clypeata.
Lipeurus squalidus Nitzsch.
Trinoton lituratum Nitzsch.
luridum Nitzsch.

Dafila acuta.
Docophorus icterodes Nitzsch.
Trinoton lituratum Nitzsch.
luridum Nitzsch.

Aythya americana.
Docophorus icterodes Nitzsch.

Aythya marila nearctica.
Docophorus icterodes Nitzsch.
Trinoton luridum Nitzsch.

Aythya affinis.
Docophorus icterodes Nitzsch.

Charitonetta albeola.
Lipeurus squalidus Nitzsch.

Eniconetta stelleri.
Lipeurus squalidus Nitzsch.

Oidemia deglandi.
Lipeurus constrictus Kellogg.
Menopon loomisii Kellogg.

Oidemia perspicillata.
Docophorus icterodes Nitzsch.
occidentalis Kellogg.
Lipeurus constrictus Kellogg.

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Oidemia sp. ("Butter-bill Coot, Oidemia;" Osborn, Ins. Aff. Dom. An., 1896, p. 248.)
Trinoton minor Osborn.

Erismatura rubida.
Docophorus icterodes Nitzsch.
pertusus Nitzsch.
Lipeurus squalidus Nitzsch.
Trinoton luridum Nitzsch.

Anser albifrons.
Lipeurus jejunus Nitzsch.

Branta canadensis.
Ornithobius goniopleurus Denny.

(?) **Olor buccinator.** (Osborn, Ins. Aff. Dom. An., 1896, pp. 217, 236.)
Docophorus cygni Denny.
Ornithobius cygni Linnæus.

(?) **Ajaja ajaja.** (Osborn, Ins. Aff. Dom. An., 1896, p. 217.)
Docophorus sphenophorus Nitzsch.

Guara alba.
Docophorus bisignatus Nitzsch.

Botaurus lentiginosus.
Lipeurus botauri Osborn.

Botaurus sp. (Osborn, Ins. Aff. Dom An., 1896, p. 234.)
Lipeurus leucopygus fasciata Piaget.

Ardea egretta.
Colpocephalum laticeps Kellogg.

Ardea virescens.
Colpocephalum diffusum Kellogg.

Grus americana.
Colpocephalum assimile Piaget.

Rallus obsoletus.
Oncophorus bisetosus Piaget, var. *californicus* Kellogg and Chapman.
Menopon tridens Nitzsch.

Rallus virginianus.
Oncophorus bisetosus Piaget, var. *californicus* Kellogg and Chapman.
Menopon tridens Nitzsch.

Porzana noveboracensis.
Oncophorus bisetosus Piaget, var. *porzanæ* Piaget.

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Fulica americana.
Docophorus graviceps Kellogg.
minutotrabeculatus Osborn.
quadraticeps Kellogg.
pertusus Nitzsch.
Lipeurus longipilus Kellogg.
luridus Nitzsch.
picturatus Kellogg.
Oncophorus advena Kellogg.
minutus Nitzsch.
Læmobothrium atrum Nitzsch.
Menopon tridens Nitzsch.
tridens Nitzsch, var. *pacificum* Kellogg.

Phalaropus tricolor.
Nirmus furvus Nitzsch.

Recurvirostra americana. ("Avocet," Osborn, Ins. Aff. Dom. An., 1896, p. 224.)
Nirmus signatus Piaget.
piceus Nitzsch.
Colpocephalum uniforme Kellogg.
Menopon indistinctum Kellogg.

Philohela minor.
Lipeurus infuscatus Osborn.
Menopon crocatum Nitzsch.

Tringa maculata.
Colpocephalum ochraceum Nitzsch.

Tringa minutilla.
Docophorus fusiformis Denny.
Nirmus complexivus Kellogg and Chapman.

Tringa sp.
Nirmus fissus Nitzsch, var. *major* Kellogg.

Tringa sp.
Docophorus cordiceps Giebel. "Black-billed Sandpiper" (Osborn; Ins. Aff. Dom. An., 1896, p. 217).
Docophorus fusiformis Denny.

Calidris arenaria.
Nirmus actophilus Kellogg and Chapman.
complexivus Kellogg and Chapman.
Colpocephalum spinulosum Piaget, var. *minor* Kellogg and Chapman.

Limosa fedoa.
Nirmus cordatus Osborn.

Limosa hæmastica.
Nirmus cordatus Osborn.
Menopon crocatum Nitzsch.

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Bartramia longicauda.
Docophorus testudinarius Denny.
Lipeurus infuscatus Osborn.

Actitis macularia.
Docophorus cordiceps Giebel.
Nirmus furvus Nitzsch, var. *ravus* Kellogg.

Numenius longirostris.
Docophorus testudinarius Denny.

Charadrius squatarola.
Docophorus fuliginosus Kellogg.
Nirmus incœnis Kellogg and Chapman.
Colpocephalum timidum Kellogg.

Charadrius dominicus.
Nirmus orarius Kellogg.
Colpocephalum timidum Kellogg.

Ægialitis vocifera.
Nirmus boephilus Kellogg.
parallelus Osborn.

Ægialitis semipalmata.
Docophorus fuliginosus Kellogg.
Nirmus opacus Kellogg and Chapman.

Colinus virginianus.
Nirmus abruptus Osborn.
Lipeurus dissimilis Piaget.
Goniodes ortygis Piaget.
Menopon pallescens Nitzsch.

(?) **Colinus virginianus.** ("Quail;" Osborn, Ins. Aff. Dom. An., 1896, p. 230.)
Goniodes dispar Nitzsch.

Oreortyx pictus plumiferus.
Lipeurus docophoroides Piaget, var. *californicus* Kellogg and Chapman.

Callipepla californica.
Lipeurus docophoroides Piaget.
Goniodes mammillatus Rudow.

Dendragopus obscurus fuliginosus.
Lipeurus perplexus Kellogg and Chapman.

(?) **Dendragopus obscurus richardsoni.** (Packard, Ann. Rept. U. S. Geol. Survey, 1872, p. 731.)
Goniodes merriamanus Packard.

Lagopus lagopus.
Lipeurus protervus Kellogg.
Goniodes mammillatus Rudow.
Menopon striatum Kellogg.

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Tympanuchus americanus.
Goniodes cupido Giebel.

Pediocætes phasianellus columbianus.
Lipeurus perplexus Kellogg and Chapman.
Goniodes mammillatus Rudow.

Gallus gallus.
(?) *Colpocephalum longicaudum* Piaget. (Osborn, Ins. Aff. Dom. An., 1896, p. 246.)

Gallus domesticus. (Domestic fowl.)
Lipeurus heterographus Nitzsch.
variabilis Nitzsch.
Menopon biseriatum Piaget.
pallidum Nitzsch.

Meleagris gallopavo. (Turkey.)
Lipeurus polytrapezius.
Goniodes stylifer Nitzsch.

Phasianus nycthemerus.
Lipeurus introductus Kellogg.
Goniocotes creber Kellogg.
Goniodes cervinicornis Giebel.
Menopon monostœchum Kellogg.

Pavo cristatus. (Peacock.)
Goniodes falcicornis Nitzsch.

Columba livia. (Domestic pigeon.)
Lipeurus baculus Nitzsch.
Goniocotes compar Nitzsch.
Goniodes damicornis Nitzsch.
Colpocephalum longicaudum Piaget.
Menopon longicephalum Kellogg.

Elanoides forficatus. ("Swallow-tailed kite;" Osborn, Ins. Aff. Dom. An., 1896, p. 246.)
Colpocephalum flavescens Nitzsch.

Elanus leucurus.
Nirmus fuscus Nitzsch.
Colpocephalum osborni Kellogg.
Menopon decoratum Kellogg.

Elanus sp. ("Milvus sp."; Osborn, Ins. Aff. Dom. An., 1896, p. 244.)
Menopon fulvofasciatum Piaget.

Circus hudsonius.
Nirmus fuscus Nitzsch.

Accipiter velox.
Docophorus platystomus Nitzsch.
Nirmus fuscus Nitzsch.

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Accipiter atricapillus striatulus.
Nirmus fuscus Nitzsch.

Buteo borealis calurus.
Nirmus fuscus Nitzsch.

Buteo borealis lucusanus.
Nirmus fuscus Nitzsch.

Buteo lineatus.
Docophorus buteonis Packard.

Buteo swainsoni.
Docophorus platystomus Nitzsch.
Nirmus fuscus Nitzsch.

Archibuteo lagopus sancti-johannis.
Docophorus taurocephalus Kellogg.
Nirmus fuscus Nitzsch.
Colpocephalum flavescens Nitzsch.

Aquila chrysaëtos.
Docophorus pictus Giebel.
Colpocephalum flavescens Nitzsch.

Aquila imperialis.
Docophorus platystomus Nitzsch.

Thrasaëtos harpyia ("Harpy eagle"; Osborn, Ins. Aff. Dom. An., 1896, p. 247).
Læmobothrium giganteum Nitzsch.

Haliaëtus leucocephalus.
Docophorus halieti Osborn.
Nirmus discocephalus amblys Kellogg.
Lipeurus pustulatus Osborn.
Colpocephalum flavescens Nitzsch.

Falco peregrinus anatum.
Nirmus fuscus Nitzsch.

Falco sparverius deserticola.
Nirmus fuscus Nitzsch.

Falco sparverius peninsularis.
Nirmus fuscus Nitzsch.

Polyborus cheriway.
Nirmus splendidus Kellogg.
Colpocephalum maculatum Piaget.

Strix pratincola.
Docophorus rostratus Nitzsch.

Asio wilsonianus.
Docophorus cursor Nitzsch.

Syrnium nebulosum.
Docophorus speotyti Osborn.
syrnii Packard.

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Scotiaptex cinerea.
Oncophorus remotus Kellogg and Chapman.

Bubo virginianus.
Docophorus bubonis Osborn.
cursor Nitzsch.
Colpocephalum subpachygaster Piaget.

Nyctea nyctea.
Docophorus ceblebrachys Nitzsch.

Speotyto cunicularia hypogæa.
Docophorus speotyti Osborn.

Crotophaga sulcirostris.
Lipeurus macgregori Kellogg.

Coccyzus americanus ("Yellow-billed cuckoo," Osborn, Ins. Aff. Dom. An., 1896, p. 222).
Docophorus coccygi Osborn.

Coccyzus americanus occidentalis.
Docophorus latifrons Nitzsch, var. *occidentalis* Kellogg.

Coccyzus erythrophthalmus.
Nirmus fenestratus Nitzsch.

Piaya cayana thermophila.
Nirmus atopus Kellogg.
Colpocephalum diffusum Kellogg.

Ceryle alcyon.
Colpocephalum pustulosum Piaget.

Dryobates villosus.
Docophorus superciliosus Nitzsch.
Nirmus candidus Nitzsch.

Dryobates pubescens.
Docophorus evagans Rudow.

Dryobates pubescens gairdneri.
Menopon funereum Kellogg and Chapman.

Dryobates nuttalli.
Docophorus singularis Kellogg and Chapman.

Xenopicus albolarvatus.
Docophorus californiensis Kellogg.

Sphyrapicus thyroideus.
Docophorus californiensis Kellogg.

Ceophlœus pileatus.
Nirmus marginatus Osborn.

Melanerpes formicivorus bairdii.
Docophorus californiensis Kellogg.

Melanerpes formicivorus angustifrons.
Docophorus californiensis Kellogg.

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Melanerpes carolinus.
Nirmus candidus Nitzsch.

Melanerpes uropygialis.
Menopon præcursor Kellogg.

Melanerpes wagleri.
Physostomum invadens Kellogg.

Colaptes auratus.
Docophorus jungens Kellogg.
alienus Kellogg.
Nirmus candidus Nitzsch.

Chordeiles virginianus henryi.
Lipeurus macrocephalus Kellogg.

Chætura pelagica.
Nitzschia pulicaris Nitzsch.
dubius Kellogg.

Trochilus colubris.
Physostomum lineatum Osborn.

Trochilus alexandri.
Nirmus vulgatus Kellogg.

Colypte costæ.
Physostomum prominens Kellogg and Chapman.

Colypte anna.
Nirmus eustigmus Kellogg.

Selasphorus rufus.
Nirmus snodgrassi Kellogg.

Tyrannus tyrannus.
Physostomum angulatum Kellogg.

Tyrannus verticalis.
Nirmus fœdus Kellogg and Chapman.

Tyrannus atra.
Docophorus buteonis Packard (probably a case of straggling; see *Buteo lineatus*).

Tyrannus sp. (Osborn, Ins. Aff. Dom. An., 1896, p. 228.)
Nirmus tyrannus Osborn.

Myiarchus cinerascens.
Docophorus communis Nitzsch.
fusco-ventralis Osborn.
rufus Kellogg.
Nirmus foedus Kellogg and Chapman.
vulgatus Kellogg.
Physostomum sp.
Menopon distinctum Kellogg and Chapman.

Myiarchus cinerascens nuttingi.
Docophorus rufus Kellogg.

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Sayornis saya.
Nirmus foedus Kellogg and Chapman.
Physostomum sp.

Contopus virens.
Docophorus fusco-ventralis Osborn.

Contopus richardsonii.
Physostomum sp.

Empidonax difficilis.
Docophorus communis Nitzsch.
Nirmus ductilis Kellogg and Chapman.
vulgatus Kellogg.
Physostomum sucinaceum Kellogg.
sp.?

Elainea subpagana.
Physostomum pallens Kellogg.
Colpocephalum diffusum Kellogg.

Otocoris alpestris.
Docophorus communis Nitzsch.

Otocoris alpestris chrysolæma.
Docophorus communis Nitzsch.

Otocoris sp. (Osborn; "shore lark.")
Docophorus communis Nitzsch.

Cyanocitta stelleri frontalis.
Docophorus communis Nitzsch.
Nirmus vulgatus Rudow.

Aphelocoma californica.
Docophorus communis Nitzsch.
Menopon persignatum Kellogg and Chapman.

Corvus corax sinuatus.
Docophorus distinctus Kellogg.
Colpocephalum subaequale Nitzsch.

Corvus americanus.
Docophorus corvi Osborn.
Nirmus secundarius Osborn.
rotundatus Osborn.
Colpocephalum subaequale Nitzsch.
Menopon mesoleucum Nitzsch, var. *americanum* Kellogg.
interruptus Osborn.

(?) **Corvus americanus.**
Lipeurus corvi Packard. (Osborn, Ins. Aff. Dom. An., p. 221, thinks this *Lipeurus* is an immature specimen of *Docophorus corvi* Osborn.)

Dolichonyx oryzivorus.
Menopon expansum Osborn.

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Molothrus ater.
Docophorus transpositus Kellogg.

Xanthocephalus xanthocephalus.
Nirmus ornatissimus Giebel, var. *xanthocephali* Osborn.

Agelaius phœniceus.
Docophorus communis Nitzsch.
agelaii Osborn.
Nirmus illustris Kellogg.
ornatissimus Giebel.

Sturnella magna.
Nirmus picturatus Osborn.

Sturnella magna neglecta.
Docophorus communis Nitzsch.

Icterus galbula.
Menopon crassipes Piaget.

Icterus bullocki.
Docophorus communis Nitzsch.

Scolecophagus cyanocephalus.
Docophorus communis Nitzsch.

(?) **Quiscalus quiscula.** ("Crow-blackbird," Osborn, Ins. Aff. Dom. An., 1896, p. 219.)
Docophorus quiscali Osborn.

Amblycercus holosericeus.
Nirmus virgatus Kellogg.
Cólpocephalum diffusum Kellogg.

Coccothraustes vespertinus montanus.
Menopon funereum Kellogg and Chapman.

Carpodacus purpureus californicus.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.

Carpodacus mexicanus frontalis.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.
Physostomum microcephalum Kellogg.

Loxia curvirostra minor.
Docophorus compar Piaget.

(?) **Acanthis linaria** (Osborn; Ins. Aff. Dom. An., 1896, p. 224).
Nirmus cyclothorax Nitzsch.

Spinus tristis.
Menopon carduelis Piaget.
incertum Kellogg.

Spinus psaltria.
Docophorus communis Nitzsch.

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Spinus pinus.
Docophorus communis Nitzsch.

Plectrophenax nivalis.
Docophorus hamatus Packard.
Nirmus thoracicus Packard.

Calcarinus lapponicus.
Docophorus communis Nitzsch.

Ammodramus sandwichensis.
Docophorus communis Nitzsch.
Physostomum diffusum Kellogg.

Chondestes grammacus strigatus.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.
Menopon incertum Kellogg.

Zonotrichia leucophrys intermedia.
Docophorus communis Nitzsch.

Zonotrichia leucophrys gambelii.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.

Zonotrichia coronata.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.
Physostomum diffusum Kellogg.
Menopon mæstum Kellogg and Chapman.

Spizella socialis arizonæ.
Docophorus communis.

Junco hyemalis.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.

Junco hyemalis oregonus.
Physostomum diffusum Kellogg.

Junco hyemalis thurberi.
Docophorus mirinotatus Kellogg and Chapman.

Junco sp.
Physostomum diffusum Kellogg, var. *pallidum* Kellogg.

Amphispiza belli.
Docophorus communis Nitzsch.
Nirmus lautiusculus Kellogg and Chapman.

Melospiza fasciata samuelis.
Docophorus communis Nitzsch.
Colpocephalum chrysophœum Kellogg.
Menopon mæstum Kellogg and Chapman
Physostomum sp.

Melospiza fasciata heermanni.
Colpocephalum grandiculum Kellogg and Chapman.

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Passerella iliaca.
Physostomum frenatum Nitzsch.
angulatum Kellogg.

Pipilo erythrophthalmus.
Physostomum frenatum Nitzsch.
Menopon melanorum Kellogg.

Pipilo maculatus megalonyx.
Nirmus vulgatus Kellogg.
Physostomum sp.

Pipilo fuscus crissalis.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.
Colpocephalum grandiculum Kellogg and Chapman.
Physostomum sp.

Cardinalis cardinalis.
Docophorus communis Nitzsch.

Cardinalis cardinalis igneus.
Docophorus communis Nitzsch.

Habia ludoviciana.
Nirmus pallidus Osborn.

Habia melanocephala.
Docophorus communis Nitzsch.

Guiraca cærulea eurhyncha.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.

Passerina amœna.
Nirmus vulgatus Kellogg.

Passerina versicolor.
Physostomum australe Kellogg.

Piranga ludoviciana.
Docophorus communis Nitzsch.

Phœnicothraupis fuscicauda.
Docophorus panamensis Kellogg.
Colpocephalum diffusum Kellogg.

Passer domesticus.
Nirmus cyclothorax Nitzsch.

Progne subis.
Docophorus domesticus Kellogg.
Nirmus gracilis Nitzsch.
Menopon rusticum Giebel.
dissimile Kellogg.

Progne subis hesperus.
Docophorus domesticus Kellogg.

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Petrochelidon lunifrons.
Docophorus excisus Nitzsch, var. *major* Kellogg.
Nirmus longus Kellogg.
Menopon malleus Nitzsch.

Chelidon erythrogaster.
Nirmus longus Kellogg, var. *domesticus* Kellogg and Chapman.

Tachycineta bicolor.
Docophorus excisus Nitzsch, var. *major* Kellogg.
Nirmus longus Kellogg.

Ampelis garrulus.
Docophorus communis Nitzsch.
Nirmus brachythorax Giebel.

Ampelis cedrorum.
Docophorus communis Nitzsch.
incisus Kellogg.
Nirmus brachythorax Giebel.
Physostomum sp.

Phainopepla nitens.
Nirmus fœdus Kellogg and Chapman.
peninsularis Kellogg.

Lanius borealis.
Docophorus communis Nitzsch.

Lanius ludovicianus excubitorides.
Docophorus communis Nitzsch.

Lanius ludovicianus gambeli.
Docophorus communis Nitzsch.
Nirmus fœdus Kellogg and Chapman.

Vireo solitarius cassini (plumbeus?).
Docophorus communis Nitzsch.

Vireo bellii pusillus.
Physostomum sp.

Saltator albicollis.
Colpocephalum diffusum Kellogg.

Chiroxiphia lanceolata.
Physostomum invadens Kellogg.
Colpocephalum diffusum Kellogg.

Arremonops striaticeps.
Colpocephalum diffusum Kellogg.

Protonotaria citrea.
Physostomum pallens Kellogg.

Helminthophila celata lutescens.
Nirmus vulgatus Kellogg.

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Dendroica æstiva.
Docophorus communis Nitzsch.
Nirmus interpositus Kellogg.
vulgatus Kellogg.
Menopon ridulosum Kellogg and Chapman.

Dendroica vieilloti.
Nirmus interpositus Kellogg.
Colpocephalum diffusum Kellogg.

Icteria virens longicauda.
Nirmus fœdus Kellogg and Chapman.

Cinclus mexicanus.
Docophorus laticeps Giebel, var. *americanus* Kellogg.
Nirmus vulgatus Kellogg.

Galeoscoptes carolinensis.
Nirmus orpheus Osborn.

Harporhynchus rufus.
Docophorus communis Nitzsch.

Helodytes brunneicapillus.
Menopon distinctus Kellogg and Chapman.
malleus Nitzsch.

Thryothorus bewicki spilurus.
Docophorus communis Nitzsch.
mirus Kellogg and Chapman.
Menopon incertum Kellogg.

Parus inornatus.
Docophorus communis Nitzsch.

Parus atricapillus occidentalis.
Docophorus rutteri Kellogg.

Parus gambeli,
Nirmus vulgatus Kellogg.

Parus rufescens neglectus.
Nirmus vulgatus Kellogg.

Psaltriparus minimus.
Colpocephalum fumidum Kellogg.
Menopon robustum Kellogg.

Auriparus flaviceps.
Nirmus audax Kellogg.

Regulus satrapa. ("Golden-crowned kinglet;" Osborn, Ins. Aff. Dom. An., 1896, p. 248.)
Physostomum frenatum Nitzsch.

Turdus ustulatus.
Menopon incertum Kellogg.

Turdus aonalaschkæ auduboni.
Docophorus communis Nitzsch.

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Turdus minor.
Menopon fuscomarginatus Osborn.

Merula migratoria.
Docophorus communis Nitzsch
Nirmus vulgatus Kellogg.
simplex Kellogg.

Sialia sialis.
Docophorus incisus Kellogg.
sialii Osborn.

Sialia mexicanus occidentalis.
Docophorus communis Nitzsch.
Nirmus vulgatus Kellogg.

MAMMALS.

Cattle.
Trichodectes scalaris Nitzsch.

Horse.
Trichodectes parumpilosus Piaget.

Goat.
Trichodectes climax Nitzsch.
limbatus Gervais.

Sheep.
Trichodectes spærocephalus Nitzsch.

Cat.
Trichodectes subrostratus Nitzsch.

Putorius ermineus.
Trichodectes retusus Nitzsch.

(?) **Putorius vulgaris** ("Weasel"; Osborn, Ins. Aff. Dom. An., 1896, p. 237).
Trichodectes retusus Nitzsch.

Erethizon dorsatum.
Trichodectes setosus Giebel.

Procyon lotor.
Trichodectes crassus Nitzsch.

Geomys bursarius.
Trichodectes geomydis Osborn.

Thomomys bottæ.
Trichodectes geomydis Osborn.

(?) **Cariacus virginianus** ("Deer"); Osborn, Ins. Aff. Dom. An., 1896, p. 241).
Trichodectes parallelus Osborn.

Cariacus columbianus.
Trichodectes tibialis Osborn.

Castor canadensis.
Trichodectes castoris Osborn.

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Spilogale interrupta.
Trichodectes mephitidis Osborn.

Mephites mephitica.
Trichodectes mephitidis Osborn.

Cavia sobaya.
Gyropus ovalis Nitzsch.
gracilis Nitzsch.

SUMMARY.

Genera of North American birds from which Mallophaga are recorded	167
Species of North American birds from which Mallophaga are recorded	257
Species of North American mammals (including domestic animals) from which Mallophaga are recorded	15

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